DOCUMENT RESUME

ED 480 181 EC 309 774

AUTHOR	Hayward, Becky J.; Schmidt-Davis, Holly
TITLE	Longitudinal Study of the Vocational Rehabilitation Services Program. Final Report 2: VR Services and Outcomes.
INSTITUTION	Research Triangle Inst., Durham, NC.
SPONS AGENCY	Rehabilitation Services Administration (ED), Washington, DC.
PUB DATE	2003-05-00
NOTE	177p.; For Final Report 1, see EC 309 773.
CONTRACT	HR92022001
AVAILABLE FROM	For full text: http://www.ed.gov/offices/OSERS/ RSA/Research/studies/index.html.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC08 Plus Postage.
DESCRIPTORS	Career Counseling; Counselor Client Relationship; *Disabilities; Employment Counselors; Employment Patterns; *Employment Services; Federal Aid; Federal Programs; Higher Education; Longitudinal Studies; *Participant Characteristics; Predictor Variables; *Program Effectiveness; Program Evaluation; Secondary Education; Self Determination; Severe Disabilities; *Supported Employment; Transitional Programs; *Vocational Rehabilitation

ABSTRACT

This report is the second in a series of four final reports that present the findings of the Longitudinal Study of the Vocational Rehabilitation (VR) Services Program. Initiated in fall 1992, the study has tracked VR participation and post-VR experiences of applicants to and consumers of VR services (n=8,500) for up to 3 years following exit from the program. Findings indicate: (1) overall, consumers who received VR services averaged 12 services during their participation in VR, with medical/physical function evaluation the most frequent service provided; (2) VR counselors spent about 14% of their time on eligibility determination activities and an additional 14% on individualized plans for employment development; (3) 81% of consumers believed they had sufficient choice in selection of vocational goals; (4) the most important factor that affected the specific services individuals received from VR was their primary disability, with individuals with mental illness receiving the most different services; (5) a substantial majority of consumers' vocational goals were in professional, managerial, or technical occupations, service occupations, and clerical or sales occupations; and (6) VR consumers who achieved a competitive employment outcome fared better on all measures of economic outcomes. Appended are: (1) Overview of the VR Program; (2) Tables on Relationships between VR Services and Disability Type; (3) Tables on Relationships between VR Services and Vocational Goal; and (4) Tables of Odds Ratios. (Contains 86 tables, and 7 exhibits, and 5 references.) (CR)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 480 181

Longitudinal Study of the Vocational Rehabilitation Services Program

Final Report 2: VR Services and Outcomes

SUBMITTED TO:

Rehabilitation Services Administration
U.S. Department of Education

in partial fulfillment of requirements under
ED Contract No. HR92022001

May 2003

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

RTI
INTERNATIONAL

EC 309774

BEST COPY AVAILABLE

Longitudinal Study of the Vocational Rehabilitation Services Program

Final Report: VR Services and Outcomes

Becky J. Hayward
Holly Schmidt-Davis

ED Contract No. HR92022001

Table of Contents

Page

Executive Summary **ES-1**

Chapter 1 Introduction **1-1**
- Overview of the Study's Mandate and Design 1-2
- The Study's Information Goals, Conceptual Framework, and Reporting Design 1-3
  - Conceptual Framework 1-4
  - Reporting Design 1-9
- Limitations of the Study's Data 1-10

Chapter 2 VR Services and the VR Process **2-1**
- Overview of Services That VR Consumers Receive 2-1
- Overview of the VR Process 2-8
- Organization of the Counselor's Functions 2-9
- Eligibility and IPE Development Activities 2-10
- The Consumer-Counselor Relationship 2-12

Chapter 3 Receipt of Specific VR Services **3-1**
- Cognitive/Psychological Assessment Services 3-1
- Education/Training Assessment Services 3-5
- Medical or Function Assessment Services 3-8
- Mobility Assessment Services 3-12
- Employment-Development Services 3-15
- Cognitive or Psychological Services 3-20
- Medical or Function Services 3-23
- Mobility-Related Services 3-25
- Postsecondary and Other Education Services 3-29
- Miscellaneous Support Services 3-33
- Case Management 3-36
- Summary 3-37

Table of Contents (continued)

Page

Chapter 4 VR Services and Primary Disability 4-1
Service Patterns Among Persons With Orthopedic Impairments 4-2
Service Patterns Among Persons With Mental Illness 4-3
Service Patterns Among Persons With Nonorthopedic Physical Impairments 4-4
Service Patterns Among Persons With Mental Retardation 4-5
Service Patterns Among Persons With Hearing Impairments 4-6
Service Patterns Among Persons With Learning Disabilities 4-7
Service Patterns Among Persons With Vision Impairments 4-8
Service Patterns Among Persons With Substance Abuse Disabilities 4-9
Service Patterns Among Persons With Traumatic Brain Injuries 4-10
Service Patterns Among Persons With Other Conditions 4-11
Relationships Between Services and Disability Type 4-12
Summary 4-16

Chapter 5 VR Services and Vocational Goal 5-1
Professional, Managerial, and Technical Occupations 5-4
Service Occupations 5-5
Clerical or Sales Occupations 5-6
Benchwork Occupations 5-7
Miscellaneous Occupations 5-8
Homemaking 5-9
Structural Occupations 5-10
Machine Trades Occupations 5-11
Relationship Between Services and Vocational Goal 5-12
Summary 5-13

Chapter 6 VR Services and Consumer Outcomes 6-1
Short- and Longer-Term Economic Outcomes of Participation in VR 6-2
Relationship of Earnings to the Federal Poverty Level 6-9
Relationship Between Specific Services and Consumer Outcomes 6-21
Short- and Longer-Term Noneconomic Outcomes of Participation in VR 6-27

References

Appendix

A Overview of the VR Program
B Tables on Relationships Between VR Services and Disability Type
C Tables on Relationships Between VR Services and Vocational Goal
D Tables of Odds Ratios

List of Tables

Table Page

2-1 Services Delivered to VR Consumers, by Category 2-3
2-2 Average Number of Services Received by VR Consumers Who Received That Service, by Category of Service 2-5
2-3 Percentage of VR Consumers Receiving Each Category of VR Services, with Indication of Delivery Arrangements 2-7
2-4 Organization of the Counselor Function: Time Spent On Counselor Activities per Month 2-9
2-5 Details of Eligibility Determination Process 2-10
2-6 Details of IPE Process 2-11
2-7 Documentation of IPE Components Among Consumers Who Completed an IPE 2-12
2-8 Consumers' Perspectives on the Amount of Choice and Control They Exercised in Working with Their VR Counselor to Develop and Implement Their IPE 2-14
2-9 Consumers' Perspectives on the Quality of Their Relationship with their VR Counselor 2-15

3-1 Percentage of Consumers Receiving Cognitive or Psychological Assessment Services, by Type of Service, Delivery Arrangements, and Duration 3-3
3-2 Costs of Purchased Services and Comparable Benefits for Cognitive or Psychological Assessment Services 3-3
3-3 Results of Cognitive Assessment Services Among VR Consumers Who Received Those Services 3-4
3-4 Percentage of Consumers Receiving Education or Training Assessment Services, by Type of Service, Delivery Arrangements, and Duration 3-6
3-5 Costs of Purchased Services and Comparable Benefits for Education and Training Assessment Services 3-6
3-6 Results of Education or Training Assessment Services Among Consumers Who Received Those Services 3-7
3-7 Percentage of Consumers Receiving Medical or Physical Function Assessment Services, by Type of Service, Delivery Arrangements, and Duration 3-9
3-8 Costs of Purchased Services and Comparable Benefits for Medical or Physical Function Assessment Services 3-10
3-9 Results of Medical or Physical Function Assessment Services Among Consumers Who Received Those Services 3-11
3-10 Percentage of Consumers Receiving Mobility Assessment Services, by Type of Service, Delivery Arrangements, and Duration 3-13
3-11 Costs of Purchased Services and Comparable Benefits for Mobility-Related Assessment Services 3-13

List of Tables (continued)

Table **Page**

3-12 Results of Mobility Assessment Services Among Consumers Who Received Those Services 3-14
3-13 Percentage of Consumers Receiving Employment-Development Services, by Type of Service, Delivery Arrangements, and Duration 3-17
3-14 Costs of Purchased Services and Comparable Benefits for Employment-Development Services 3-18
3-15 Results of Employment-Development Services Among Consumers Who Received Those Services 3-19
3-16 Percentage of Consumers Receiving Cognitive or Psychological Services, by Type of Service, Delivery Arrangements, and Duration 3-21
3-17 Costs of Purchased Services and Comparable Benefits for Cognitive or Psychological Treatment Services 3-21
3-18 Results of Cognitive or Psychological Services Among Consumers Who Received Those Services 3-22
3-19 Percentage of Consumers Receiving Medical or Physical Function Services, by Type of Service, Delivery Arrangements, and Duration 3-23
3-20 Costs of Purchased Services and Comparable Benefits for Medical or Physical Function Treatment Services 3-24
3-21 Results of Medical or Physical Function Services Among Consumers Who Received Those Services 3-24
3-22 Percentage of Consumers Receiving Mobility-Related Services, by Type of Service, Delivery Arrangements, and Duration 3-26
3-23 Costs of Purchased Services and Comparable Benefits for Mobility-Related Services 3-27
3-24 Results of Mobility-Related Services Among Consumers Who Received Those Services 3-28
3-25 Percentage of Consumers Receiving Postsecondary Education Services, by Type of Service, Delivery Arrangements, and Duration 3-30
3-26 Costs of Purchased Services and Comparable Benefits for Postsecondary Education and Other Education Services 3-30
3-27 Results of Postsecondary Education Services Among Consumers Who Received Those Services 3-31
3-28 Percentage of Consumers Receiving Other Education Services, by Type of Service, Delivery Arrangements, and Duration 3-32
3-29 Results of Other Education Services Among Consumers Who Received Those Services 3-32
3-30 Miscellaneous Support Services, by Type of Service, Delivery Arrangements, and Duration 3-34
3-31 Costs of Purchased Services and Comparable Benefits for Miscellaneous Support Services 3-35
3-32 Results of Miscellaneous Support Services Among Consumers Who Received Those Services 3-35

List of Tables (continued)

Table **Page**

3-33 Percentage of Consumers Receiving Case Management Services, by Type of Service, Delivery Arrangements, and Duration 3-36
3-34 Results of Case Management Services Among VR Consumers Who Received Those Services 3-37

4-1 Primary Disability of VR Consumers 4-1
4-2 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Orthopedic Impairments....4-2
4-3 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Mental Illness 4-3
4-4 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Nonorthopedic Physical Impairments 4-4
4-5 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Mental Retardation 4-5
4-6 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Hearing Impairments....4-6
4-7 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Learning Disability....4-7
4-8 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Vision Impairments....4-8
4-9 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Substance Abuse....4-9
4-10 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Traumatic Brain Injury 4-10
4-11 VR Services Most Frequently Obtained by Consumers with a Primary Disability of Other Conditions....4-11
4-12 VR Services Most Frequently Obtained by Consumers....4-16

5-1 Occupational Type of Consumers' Vocational Goal....5-1
5-2 Determinants of Consumers' Vocational Goal and of Subsequent Changes in Goal....5-2
5-3 Occupational Type of Consumers' Initial and Final Vocational Goal for Consumers Who Changed Goals....5-3
5-4 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Professional, Managerial, or Technical Occupations....5-4
5-5 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Service Occupations 5-5
5-6 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Clerical/Sales Occupations....5-6
5-7 VR Services Most Frequently Obtained by Consumers With a Vocational Goal in Benchwork Occupations 5-7

List of Tables (continued)

Table **Page**

5-8 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Miscellaneous Occupations 5-8
5-9 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Homemaking 5-9
5-10 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Structural Occupations 5-10
5-11 VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Machine Trades Occupations 5-11

6-1 Employment Status of Former VR Consumers Over Time, by VR Exit Status 6-4
6-2 Employment Status Over Time of Former VR Consumers, by Competitive and Noncompetitive Employment Outcome 6-5
6-3 Occupational Field of Jobs at Closure and One, Two, and Three Years Later, by Exit Status 6-6
6-4 Percentage of Consumers Not Working at Follow Up Among Persons Who Exited VR with an Employment Outcome 6-7
6-5 Earnings of Former VR Consumers Over Time, by VR Exit Status 6-8
6-6 Earnings of Former VR Consumers Over Time, by Competitive and Noncompetitive Employment Outcomes 6-9
6-7 Relationship of Earnings to the Federal Poverty Level at Exit and One, Two, and Three Years Later, by Type of Exit 6-10
6-8 Hours Worked Per Week of Former VR Consumers Working Over Time, by VR Exit Status 6-11
6-9 Hours Worked Per Week of Former VR Consumers, by Competitive and Noncompetitive Employment Outcome 6-12
6-10 Percentage of Former VR Consumers with Benefits Provided by Their Employer, by VR Exit Status 6-13
6-11 Percentage of Former VR Consumers with Benefits Provided by Their Employer, by Competitive and Noncompetitive Employment Outcome 6-14
6-12 Receipt of Financial Assistance at Entry to VR and Following Exit, by Type of Exit 6-16
6-13 Receipt of Transfer Payments at Entry to VR and Following Exit, by Job Type at Exit 6-18
6-14 Receipt of Transfer Payments at Entry to VR and Following Exit, by Job Type at Exit Among Former Consumers Exiting VR with an Employment Outcome but Not Working at Follow Up 6-19
6-15 Percentage of Former VR Consumers Reporting Satisfaction with Selected Aspects of Their Employment, for Consumers with Competitive or Noncompetitive Jobs and Those Without an Employment Outcome 6-20
6-16 Receipt of Services Following Exit from VR, Among Persons Who Received Services 6-29

List of Tables (continued)

Table **Page**

6-17 Self-Reported Measures of Community Integration at Entry to VR and Following Exit from VR, Among Persons Who Received Services 6-31
6-18 Self-reported Measures of Community Integration at Entry to VR and Following Exit, Among Persons Who Exited VR with an Employment Outcome but Were Not Working at Follow-up, by Type of Employment Outcome 6-32
6-19 Self-Reported Measures of Increased Integration and Independence Following Exit From VR, Among Persons Who Received VR Services 6-33
6-20 Overall Perspectives on VR Services, Among Persons Who Received Services 6-35

List of Exhibits

Exhibit **Page**

1-1 Conceptual Framework 1-5

4-1 Relationship Between Service Patterns and Type of Disability 4-14

5-1 Relationship Between Service Patterns and Vocational Goal 5-12

6-1 Services That Lead to Employment 6-23
6-2 Services That Lead to Competitive Employment 6-26
6-3 Services That Lead to Earnings Outcome 6-27
6-4 Services That Lead to Receipt of Health Benefits with Employment 6-28

Executive Summary

This report is the second in a series of four final reports and several research briefs that present the findings of the Longitudinal Study of the Vocational Rehabilitation (VR) Services Program, a study that RTI International is conducting for the Rehabilitation Services Administration (RSA), U.S. Department of Education, under contract number HR92022001. The broad purpose of the study is to assess the performance of the state-federal VR services program in assisting eligible individuals with disabilities to achieve positive, sustainable economic and noneconomic outcomes as a result of their receipt of VR services. This report contains details of the services that VR consumers receive from VR and analyzes the relationships between receipt of those services and short- and longer-term economic and other outcomes.

Initiated in fall 1992, the longitudinal study has tracked VR participation and post-VR experiences, for up to three years following exit from the program, of a nationally representative sample of applicants to and consumers of VR services. The study's sample acquisition and data collection activities began in January 1995 and were completed in January 2000, with sample acquisition occurring over a two-year period and each of the study's 8,500 participants tracked for 3 years.

The study implemented a multistage design that involved selection of a random sample (with probability proportional to size) of 40 local VR offices (located in 32 state VR agencies in a total of 30 states) and, among those offices, a sample of 8,500 applicants and current and former consumers of VR services. The study implemented a cohort design that involved randomly selecting 25 percent of the sample from the population of persons at application to VR, 50 percent of the sample from the population of persons who were already accepted for and receiving services, and 25 percent of the sample from the population of persons at exit or after they exited VR services.

Data collection included computer-aided interviews with study participants, abstraction of data from consumers' case records, and mail surveys to VR agencies. A battery of baseline interviews conducted with each study participant at the time of entry into the study obtained information on work history, functioning, vocational interests and attitudes, independence and community integration, and consumer perspectives on their VR participation. Follow-up interviews administered for three subsequent years varied according to the individual's stage in the VR process at the time of interview. Records abstraction included consumer characteristics and detailed information on services; records were abstracted at the time the consumer entered the study and quarterly until that person exited VR. Agency instruments included mail surveys of office managers in participating VR offices, counselors, and other office staff, as well as a state policies and procedures form. These instruments were administered at initiation and termination of the study's data collection activities, with annual updates from the local office manager surveys.

Specific study questions that this report addresses are as follows:

To what extent does receipt of specific VR services contribute to successful consumer outcomes?

What service inputs do state VR agency consumers receive, including:

P the amount, type, duration, and dollar value of purchased services;

P the amount, type, duration, and dollar value of comparable benefits;

P the amount, type, duration, and dollar value of agency-provided consumer services; and

P the amount of counselor time devoted to individual cases?

How long do most consumers retain their jobs, and are post-employment services utilized adequately to maximize consumers' job retention?

What short- and long-term economic and noneconomic outcomes do VR applicants and consumers achieve as a result of their participation in VR?

How do consumers perceive the quality and utility of the services they receive and the employment they ultimately obtain, as well as other outcomes (independence and community integration)?

What are the long-term outcomes after VR closure, including:

P employment status at one, two, and three years following the consumer's exit from VR services;

P the extent that earnings, adjusted for inflation, changed over time;

- employment as it relates to employee benefits (e.g., health or life insurance, etc.) and opportunities for advancement; and
- the extent that consumer independence and community integration are enhanced?

The report's organization is as follows. Chapter 1 provides a brief overview of the longitudinal study,[1] addressing the study's authorization, information goals, conceptual framework, and plan for the series of final reports. Chapter 2 comprises an overview of VR services and the VR process through which counselors work with consumers to develop and implement service plans to assist consumers in achieving their vocational goal. Chapter 3 contains findings regarding specific services that VR consumers receive during their VR experience. Chapter 4 addresses patterns of services consumers receive according to their primary disability, and Chapter 5 examines service patterns according to occupational type of consumers' vocational goal. Chapter 6 contains analyses of consumer outcomes, including analysis of the relationships among services received, consumer characteristics, and short- and longer-term economic and other outcomes.

Overview of VR Services

As specified in Section 103(a) of the Rehabilitation Act, as amended in 1998, VR services for individuals include ". . .any services described in an individualized plan for employment necessary to assist an individual with a disability. . . ." achieve his or her vocational goal. The longitudinal study collected detailed information on 57 different services identified as available to VR consumers, including:

- assessments (14 different types of assessment),
- employment-development services (8 services),
- cognitive/psychosocial services (4 services),
- medical/function services (4 services)
- mobility-related services (7 services),
- postsecondary education (3 services),
- other education (7 services),
- miscellaneous support (7 services), and
- case management services (3 services).

---

[1] A later report will provide details on the study's design and methodology.

Overall, consumers who received VR services averaged 12 services (median 9.0) during their participation in VR. The service most frequently delivered to consumers was medical/physical function evaluation, with 62 percent of consumers receiving this type of service. Other frequently delivered services included cognitive/psychological assessment and services (35 percent of consumers), employment-development services (33 percent), postsecondary education (33 percent), and miscellaneous support services, such as transportation or maintenance (38 percent). Delivery arrangements differed widely among services, including services that agency staff provided directly, those purchased from vendors, and those arranged through comparable benefits. Most services can be provided through more than one mechanism (e.g., vocational evaluation, which agency staff sometimes provided directly and sometimes purchased from vendors).

The VR Process

VR counselors spent about 14 percent of their time on eligibility determination activities and an additional 14 percent on Individualized Plan for Employment (IPE) development. Counseling/guidance took up 23 percent, and file management and documentation, about one-fourth of their available time. Consumers reported active involvement in decision making and control over the process, with 81 percent believing that they had sufficient choice in selection of vocational goal and 81 percent commenting that the counselor provided adequate information regarding available services and service providers. Half reported being in charge of decisions to a great extent, and an additional 41 percent to some extent. Consumers also reported satisfaction with their involvement in activities related to planning and delivery of services. For example, nearly three-fourths of consumers reported that their counselor always showed sufficient concern for their needs, and over three-fourths reported that their counselor was willing to listen to their ideas and suggestions. Three-fourths were very or mostly satisfied with their counselor's efforts to help them work toward obtaining employment. A relatively small percentage of consumers, around 10 percent, were consistently dissatisfied with their interactions with their counselor, with their counselor's efforts and concern, and with their control over their VR services.

Receipt of Specific VR Services

Over 80 percent of VR consumers received at least one assessment service in connection with their VR participation. Over half received medical evaluation services; 30 percent received psychological or psychiatric evaluation, 28 percent received a vocational assessment, and 13 percent received a vision assessment. Eighty-six percent of consumers received at least one service other than assessment or case management. The most frequently received of these services were counseling (30 percent), transportation (27 percent), assistive technology (AT) devices (21 percent), and business or vocational training (16 percent). Finally, 95 percent of consumers' case files documented activities associated with eligibility determination and IPE development and amendment.

VR Services and Primary Disability

The most important factor that affected the specific services individuals received from VR was their primary disability, both in terms of the types of services persons received and in terms of the average number of services they received. For example, consumers with mental illness received more different services than did any other group, followed by consumers with traumatic brain injury (TBI) and those with learning disabilities. Conversely, persons with vision impairments received the fewest different services, followed by consumers with hearing impairments or those with mental retardation. The implications of this finding may include the possibility that persons with a variety of psychological or cognitive impairments may require relatively more assessment services to assist them in selecting a vocational goal and more employment-development or educational services to prepare for a career than do persons who have other more specific needs. For example, consumers with vision or hearing impairments typically obtained assessment services and subsequent assistive devices, and received relatively fewer other services than did persons with other disabilities. Persons with mental retardation received fewer assessment services than other consumers and received a relatively larger number of employment-development services such as supported employment, work adjustment, job development, and job placement.

Analysis of relationships between services and disability type reveals that service patterns do differ by disability type, thus supporting the hypothesis that the VR program individualizes services to meet consumers' needs and preferences.

VR Services and Vocational Goal

A substantial majority of consumers' vocational goals were in three fields: professional, managerial, or technical occupations (35 percent); service occupations (21 percent); and clerical or sales occupations (18 percent). According to data in consumers' files, consumer preference was the single most important determinant of both initial and final goal for the 18 percent who changed goals over the course of VR services. Interviews with consumers indicated that four-fifths of consumers were generally satisfied with the process of goal setting, their control over the decision regarding vocational goal, and the goal itself. Consumers were also generally satisfied with decision making regarding services and the services they received, although they were somewhat less satisfied with the providers of services.

For all occupational types, medical evaluation was the most frequent service received by consumers with goals in those areas. Although most of the same services were frequently received by all consumers, their distribution varied somewhat according to goal, and some services (e.g., supported employment, four-year college) occurred infrequently and did not appear as frequent services for most goal areas. Given the impetus to individualized services that characterizes the VR program, the similarities in service patterns across occupational areas of vocational goal are perhaps more striking than the differences, however.

Economic Outcomes of VR Services

On all measures of economic outcomes, VR consumers who achieved a competitive employment outcome fared better than did those who achieved a noncompetitive employment outcome and persons who exited without an employment outcome. For example, at the third annual follow up, 78 percent of persons exiting into competitive employment were still working, compared with 70 percent of those exiting into noncompetitive employment, 37 percent of those who received services but exited VR without an employment outcome, and 40 percent of those who were eligible but dropped out before receiving VR services. In terms of earnings, by the end of the third year after exit, persons exiting into competitive employment were much less likely than other consumers to have earnings below the federal poverty level and much more likely to have earnings more than 200 percent of the poverty level:

VR exit status	**Percent of VR consumers below poverty**	**Percent of VR consumers >200 percent of poverty level**
Competitive employment	20	46
Noncompetitive employment	63	20
No employment outcome following services	32	28
No employment outcome, exited prior to services	34	40

For the same fiscal year (1996, using constant dollars), 14 percent of the general population was below poverty, while 62 percent had earnings greater than 200 percent of poverty.

Controlling for consumer characteristics (e.g., disability type and significance, receipt of SSI/SSDI, etc.), we found that a number of services increased (or decreased) the likelihood that consumers would achieve competitive employment. Those that increased the likelihood of such employment were:

- job development, job placement, on-the-job training;
- business/vocational school, four-year college/university;
- tools/uniforms/equipment; and
- IPE amendment.

Those that decreased the likelihood of competitive employment were:

- supported employment, and
- medical services.

As detailed in Chapter 6, our analyses, controlling for differences in consumer characteristics, found that a number of specific VR services contributed to a consumer's likelihood to achieve an employment outcome and a competitive employment outcome. An important part of services leading to these outcomes was a relationship between the consumer and counselor that the consumer believed was productive and helpful, with flexibility to amend the consumer's service plan as appropriate to facilitate achievement of the vocational goal. The quality of the consumer-counselor relationship also contributed to higher earnings, both at closure and at subsequent follow-up points.

As preliminary findings from the study have indicated in the past, enrollment in postsecondary education was associated with achievement of competitive employment, which is likely to offer greater return over time in terms of earnings, benefits, and career advancement potential. Our analytic models indicate the utility of these services, along with others, in leading to better employment-related outcomes.

Other Outcomes

For up to three years following exit from VR services, persons who achieved competitive employment consistently reported less frequent use of a variety of services than did persons who exited into noncompetitive employment or those who exited VR without an employment outcome following services. Comparable figures for the first year after exit were 8 percent of those exiting into competitive employment, 25 percent for those with a noncompetitive job, and 18 percent for those exiting services without an employment outcome. By the end of year three, the percentages were 7, 24, and 16 percent, respectively.

In terms of community integration, at study entry fewer persons who later exited into competitive employment reported that their disability restricted their ability to participate fully in social and community activities than did those exiting into noncompetitive employment or those exiting services without an employment outcome (32 percent versus 42 and 43 percent, respectively). Further, those exiting into competitive employment reported that these restrictions continued to decline (i.e., become less of a problem) over time; by the end of the third year, only 22 percent reported that their disability restricted their participation in social or community activities.

An interview collected information on the extent to which consumers believed that VR contributed to improvement on selected aspects of community integration, independence, self-advocacy, and other factors with which VR might be expected to help consumers. Consumers who exited following services without an employment outcome reported a greater need for help from VR on these dimensions than did persons who exited into competitive employment. Further, they more often reported that VR was not at all helpful than did persons who exited into competitive employment. Thus they were consistently less pleased with the assistance they received from VR in terms of these noneconomic outcomes. Conversely, on many of the dimensions, persons exiting into competitive employment and those exiting into noncompetitive employment had similar perspectives. For example, about the same percentage of both groups reported that VR either helped them a great deal (49 and 45 percent, respectively) or somewhat (39 and 41 percent) in gaining self-confidence. Similarly, among persons reporting that they needed help in coping with disability, about the same percentage of these two groups (those entering competitive or noncompetitive employment) reported that VR helped a great deal (47 and 50 percent) or somewhat (38 and 35 percent). For both of these factors, more than twice as many persons exiting without an employment outcome reported that VR did not help them at all. For self-confidence, 13 percent of each group exiting into employment reported that VR was not at all helpful, compared with 30 percent of those without an employment outcome. Comparable figures on coping with disability were 16 and 15 percent versus 36 percent.

Overall Perspective on the VR Experience

In addition to a number specific questions regarding consumers' perspectives on their VR experience, consumers who received VR services offered their overall perspective on VR through responses to items about whether they would, should the opportunity arise, want to obtain the same or different rehabilitation services. The interview occurred at or shortly after exit from VR services. Nearly two-thirds of persons exiting into competitive jobs responded that if they had to pay for services, they would purchase "exactly the same" services they received from the VR program. Twenty-seven percent would purchase better or different services, while 9 percent would spend the money on something other than rehabilitation services. Figures for persons entering noncompetitive employment were slightly, but nonsignificantly, different, with a slightly higher percentage (71 percent) indicating that they would buy exactly the same services that they received from the VR program. Conversely, persons who exited services without an employment outcome were distinctly less positive about their VR experience. Only 42 percent reported that they would buy the same services; slightly more than that reported that they would buy different or better services from the ones VR provided (44 percent), and more consumers than those exiting into competitive jobs indicated they would buy something other than rehabilitation services (14 versus 9 percent). These findings parallel those from earlier reports (e.g., Hayward, Interim Report 2, 1996) in that persons who exited services with an employment outcome, whether competitive or noncompetitive, had considerably more positive perspectives regarding most aspects of their

VR experience than did persons who were not successful in achieving an employment outcome. Additional analyses planned for subsequent reports may help to reveal the extent to which motivation, service quality, or other factors may play a part in these perspectives independent of whether the consumer achieved an employment outcome as a result of VR services.

Chapter 1

Introduction

This report is the second in a series of four final reports and several research briefs that present the findings of the Longitudinal Study of the Vocational Rehabilitation (VR) Services Program, a study that RTI is conducting for the Rehabilitation Services Administration (RSA), U.S. Department of Education, under contract number HR92022001. The broad purpose of the study is to assess the performance of the state-federal VR services program in assisting eligible individuals with disabilities to achieve positive, sustainable economic and noneconomic outcomes as a result of their receipt of VR services. This report contains details of the services that VR consumers receive from VR and analyzes the relationships between receipt of those services and short- and longer-term outcomes.

The report's organization is as follows. The remainder of this chapter provides a brief overview of the longitudinal study,[1] addressing the study's authorization, information goals, conceptual framework, and plan for the series of final reports. Chapter 2 comprises an overview of VR services and the VR process through which counselors work with consumers to develop and implement service plans to assist consumers in achieving their vocational goal. Chapter 3 contains findings regarding specific services that VR consumers receive during their VR experience. Chapter 4 addresses patterns of services consumers receive according to their primary disability, and Chapter 5 examines service patterns according to occupational type of consumers' vocational goal. Chapter 6 contains analyses of consumer outcomes, including analyses of the relationships among services received, consumer characteristics, and short- and longer-term economic and other outcomes.

---

[1] A later report will provide details on the study's design and methodology.

Overview of the Study's Mandate and Design

Initiated in fall 1992, the Longitudinal Study of the Vocational Rehabilitation Services Program addresses key questions of interest to Congress, RSA, state VR agencies, and consumers about the performance of the state-federal VR program.[2] The study's congressional mandate, contained in Section 14 of the Rehabilitation Act, as amended in 1992, directs the Secretary of the U.S. Department of Education to conduct a longitudinal study of the VR program:

> (f) (1) To assess the linkages between vocational rehabilitation services and economic and noneconomic outcomes, the Secretary shall continue to conduct a longitudinal study of a national sample of applicants for services.
>
> (2) The study shall address factors related to attrition and completion of the program through which the services are provided and factors within and outside the program affecting results. Appropriate comparisons shall be used to contrast the experiences of similar persons who do not obtain services.
>
> (3) The study shall be planned to cover the period beginning on the application of the individuals for the services, through the eligibility determination and provision of services for the individuals, and a further period not less than 2 years after termination of services (Section 14 (f)).

In response to this mandate, the study tracked VR participation and post-VR experiences, for up to three years following exit from the program, of a nationally representative sample of applicants to and consumers of VR services. The study's sample acquisition and data collection activities began in January 1995 and were completed in January 2000, with sample acquisition occurring over a two-year period and each of the study's 8,500 participants tracked for three years.

The study implemented a multistage design that involved selection of a random sample (with probability proportional to size) of 40 local VR offices (located in 32 state VR agencies in a total of 30 states), and, among those offices, a sample of 8,500 applicants and current and former consumers of VR services. The study implemented a cohort design that involved randomly selecting 25 percent of the sample from the population of persons at application to VR, 50 percent of the sample from the population of persons who were already accepted for and receiving services, and 25 percent of the sample from the population of persons at or after they exited VR services.

---

[2] Appendix A contains an overview of the VR program, which focuses on the program as implemented during the study's data collection period (December 1994 through December 1999).

Data collection included computer-aided interviews with study participants, abstraction of data from consumers' case records, and mail surveys to VR agencies. A battery of baseline interviews conducted with each study participant at the time of entry into the study obtained information on work history, functioning, vocational interests and attitudes, independence and community integration, and consumer perspectives on their VR participation. A follow-up interview administered for three subsequent years varied according to the individual's stage in the VR process at the time of interview. Records abstraction included consumer characteristics and detailed information on services; records were abstracted when the consumer entered the study and quarterly until that person exited VR. Agency instruments included mail surveys of office managers in participating VR offices, counselors, and other office staff, as well as a state policies and procedures form. These instruments were administered at initiation and termination of the study's data collection activities, with annual updates from the local office manager surveys.

The Study's Information Goals, Conceptual Framework, and Reporting Design

The VR longitudinal study has been designed to answer the following questions. (The questions that are addressed in this report [Report 2] appear in bold text below.)

P **What short- and long-term economic and noneconomic (e.g., independent living, community integration) outcomes do VR applicants and consumers achieve as a result of their participation in VR? (Report 2)**

P What characteristics of individuals with disabilities affect their (1) access to and receipt of VR services, and (2) short- and long-term outcomes? (Report 1)

P **To what extent does receipt of specific VR services contribute to successful consumer outcomes? (Report 2)**

P In what ways and to what extent do local environmental factors influence VR consumers' services and outcomes? (Report 3)

P In what ways and to what extent do the operations, resources, and organizational climate of VR agencies influence consumers' services and outcomes? (Report 3)

P Given the relationship among consumer characteristics, contextual factors, and VR services, what are the results of the VR program? (Report 4)

Specific issues that this report addresses include the following:

To what extent does receipt of specific VR services contribute to successful consumer outcomes?

What service inputs do state VR agency consumers receive, including:

- P the amount, type, duration, and dollar value of purchased services;
- P the amount, type, duration, and dollar value of comparable benefits;
- P the amount, type, duration, and dollar value of agency-provided consumer services; and
- P the amount of counselor time devoted to individual cases?

How long do most consumers retain their jobs, and are post-employment services utilized adequately to maximize consumers' job retention?

What short- and long-term economic and noneconomic outcomes do VR applicants and consumers achieve as a result of their participation in VR?

How do consumers perceive the quality and utility of the services they receive and the employment they ultimately obtain, as well as other outcomes (independence and community integration)?

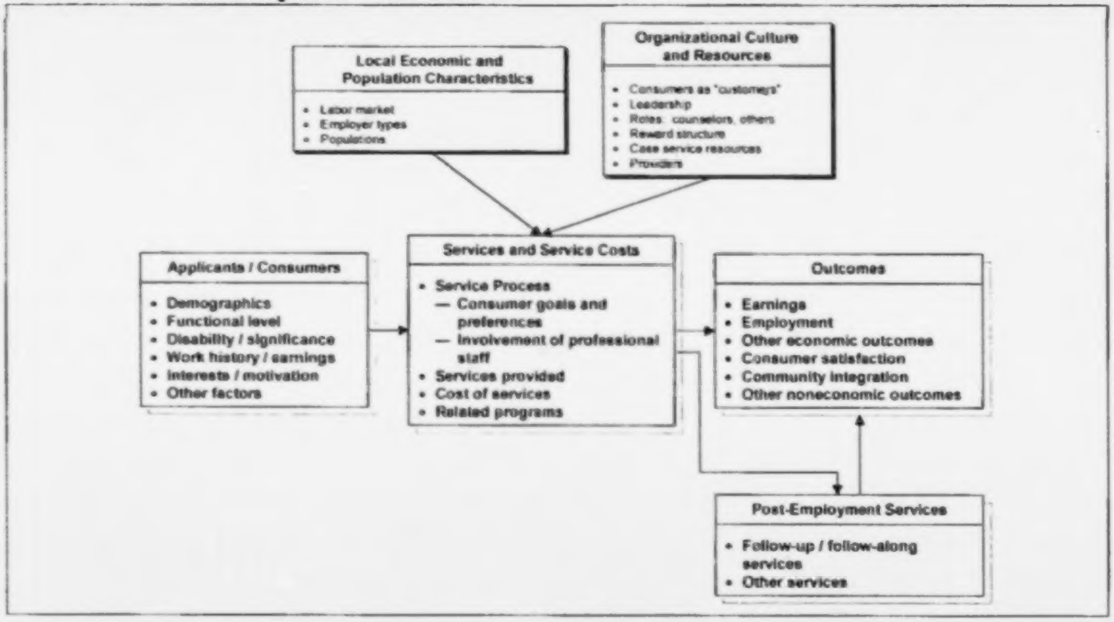
What are the long-term outcomes after VR closure, including:

- P employment status at one, two, and three years following the consumer's exit from VR services;
- P the extent that earnings, adjusted for inflation, changed over time;
- P employment as it relates to employee benefits (e.g., health or life insurance, etc.) and opportunities for advancement; and
- P the extent that consumer independence and community integration are enhanced?

Conceptual Framework

The study's conceptual framework, which organizes the study's information goals and research questions, starts with the assumption that the outcomes of VR services are a function of the types of consumers entering the program, the economic conditions affecting the local labor market, the organizational resources and culture of the VR agency and its local service offices, and the services that consumers receive. Exhibit 1-1[1] is a representation of the conceptual framework, with its components and the relationships among them shown as interconnected boxes. Each of the study's four final reports focuses on a different subset of the framework's components, as explained later in this chapter. The present report examines the relationships among consumer characteristics, services, and outcomes, as highlighted in Exhibit 1-1.

Exhibit 1-1. Conceptual Framework


Local Economic and Population Characteristics
• Labor market
• Employer types
• Populations
Organizational Culture and Resources
• Consumers as "customers"
• Leadership
• Roles: counselors, others
• Reward structure
• Case service resources
• Providers
Applicants / Consumers
• Demographics
• Functional level
• Disability / significance
• Work history / earnings
• Interests / motivation
• Other factors
Services and Service Costs
• Service Process
— Consumer goals and preferences
— Involvement of professional staff
• Services provided
• Cost of services
• Related programs
Outcomes
• Earnings
• Employment
• Other economic outcomes
• Consumer satisfaction
• Community integration
• Other noneconomic outcomes
Post-Employment Services
• Follow-up / follow-along services
• Other services

The model described in this framework can be expressed as follows:

Outcomes are a function of:

P the characteristics of *applicants and consumers,*
P *services* and service costs,
P *local economic and population characteristics,* and
P the *organizational culture and resources* in the local agency office,

where *outcomes* are defined as: earnings, employment, other economic outcomes, consumer satisfaction, community integration, and other noneconomic outcomes.

This general model has been used as the basis for analysis in numerous other VR studies. However, other studies have not had access to the wealth of data that the longitudinal study has collected, including important pre- and post-program measures of consumer experience and long-term outcomes. In addition, there have been few efforts to examine the impact of the VR system itself on consumer outcomes. This longitudinal study offered the opportunity to

BEST COPY AVAILABLE

collect extensive data on individuals, services, and outcomes, expanding previous analytical bases and allowing a more thorough assessment of VR results. For each of the major components in the model, we discuss conceptual and design issues relevant to this study.

We developed the conceptual framework to organize the hypotheses we held about the relationships among the concepts represented by the components and to guide the study activities. Elaborating the variables within each component helped determine the data collection plans and the study questions. This, along with the hypothesized relationships among the components, led to our analytic activities.

Each of the study's major questions focuses on relationships between two or more components of the conceptual framework. For example, to answer the question, "To what extent does receipt of specific VR services contribute to successful consumer outcomes?", our analyses examine the data from the *Services and Service Costs* component, the *Outcomes* component, and the statistical relationships among those variables. As described below, each of the longitudinal study's final reports focuses on a different subset of study questions and components of the conceptual framework.

Applicants/Consumers. The VR system is not an entitlement program, but serves eligible applicants in an environment of funding and service constraints. The effect of the VR program is in part due to the range of disabilities, the severity of the caseload, the degree of work experience, and the work attitudes that consumers bring to the VR experience. There are also identified differences in the likelihood of acceptance, and successful closure, related to age, sex, race, education level, disability type and significance, and other consumer descriptors (See *Report 1: How Consumer Characteristics Affect Access to, Receipt of, and Outcomes of VR Services*).

To date, most analyses of the state-federal VR system have been limited to differential patterns of achieving an employment outcome. They also have been limited to existing consumer descriptors as available in RSA's R-911 data files. The VR consumer base has been changing significantly, moving from a consumer base with needs for physical restoration (industrial accidents, war injuries) to an increasing percentage of persons with learning disability, mental illness, traumatic brain injury, and other cognitive disabilities, and to persons with limited or no work history, problematic work behaviors, and other barriers to employment. The traditional indicators of consumer disability type, or nominal indicators of "significance," do not adequately differentiate among consumers or applicants. Additional measures (such as functional level, work history, interests and motivation, and receipt of financial assistance) will contribute greatly to our understanding of differences in caseloads, differences in applicants and accepted consumers, and explanation of outcomes.

Services and Service Costs. We use "services" broadly to include the consumer's VR process, including work with the counselor, assessment specialists, and others from application through exit from VR and postemployment services. This list of services includes equipment, adaptive devices, supplies, and professional and other services directly paid for by the agency through purchase of services, as well as internal resources such as counselor time, assessor time, and other staff time directly spent with the consumer, and services arranged with other providers and funding sources, as "comparable benefits." This study gathered data on a list of services that is much more detailed than normally reported to RSA in the R-911 and other RSA reporting, and also allows for a basis for estimating service costs.

Postemployment Services. Postemployment services are available to consumers after completing the VR program, if such services will facilitate retention of the placement. While a wide range of counseling and services are available to consumers after VR exit that assist consumers with job retention, these services are unevenly provided. Provision of adequate postemployment services may affect both job retention and recidivism.

Organizational Culture and Resources. The VR program comprises 80 general, combined, and blind state VR agencies, each with its own resources (in light of differences in state levels of support for VR), internal organization, management philosophy, and organizational culture. Resources include fiscal resources available for purchase of services, a critical mass of effective service delivery professionals, and availability and accessibility of service providers or vendors.

In addition to the availability of resources is the existence of an organizational culture, or climate, that supports effective service delivery. In recent years, attention has increasingly focused on the influence of organizational culture within agencies on the effectiveness of their programs. Established in early work by Deming, the field of quality management as a whole has shifted from a concern with information and control to a concern with human factors. In human service agencies, human factors are especially important for delivering high-quality services (Bowen and Schneider, 1988). The human organization that creates quality is characterized by its culture of quality; key elements of the culture of quality are training and participation. The following indicators are important to measure in assessing organizational climate: management commitment to quality, extent of barriers to employee participation and teamwork, effectiveness of communication between supervisors and employees, practices in numerical goals and quotas for employees, and company-wide training and education in quality. The organizational culture is viewed as an influencing factor on both quality of services and resulting service outcomes.

Local Population and Economic Environment. Within the national state-federal program, VR services are delivered under widely varying conditions. Localities vary in their urban or rural nature, in the availability of jobs, and even in the prevalence of work disability in the state population. In examining the success of the VR program, it is useful to control for those external factors that may affect services or likelihood of outcomes. Thus, external conditions—exogenous factors in terms of VR discretion—should be taken into consideration in our conceptual framework.

Outcomes. A range of outcomes is relevant to this study, including both economic and noneconomic outcomes. VR traditionally has reported one outcome, the achievement of an employment outcome, as the key measure of program success. Within this measure is a variety of types of successful outcomes, from placement in a job in the competitive labor market to work as a homemaker or unpaid family worker. Amount of earnings at closure is another available outcome measure in the existing information system. Many of the previous analytical and theoretical efforts in this field have recommended gathering income data longitudinally to measure more accurately both the magnitude and the duration of employment-related outcomes. A variety of economic measures of outcomes is relevant to this study, including employment at exit from VR services and at one, two, and three years following closure; competitive employment at each of those time points; and earnings at each of those time points.

In addition to measures of income and job retention, a number of noneconomic outcomes can serve as indicators of success or gain in VR. These include independent living, community integration, satisfaction with employment, and satisfaction with VR services.

Reporting Design {tc "Reporting Design " \l 2}

Definitive findings that address the study's research questions are the focus of a series of final reports. In addition to four final reports, other study products will include a series of research briefs that address more restricted topics of interest relevant to the operations and performance of the VR program. These reports, in combination with the four interim reports[3] already completed and numerous research memoranda prepared over the study period, will yield comprehensive answers to the study's primary research questions and to a number of other topics of interest to policy makers, researchers, consumers, and practitioners. In addition to the final reports of study findings, other study deliverables include a methodology report and public use data files with full documentation.

The First Final Report focused on the *Applicants/Consumers* component of the framework and the relationship of those variables to portions of the *Outcomes* component, specifically eligibility for VR, receipt of VR services, and achievement of an employment outcome, including achievement of competitive employment.

The Second Final Report—the present report—examines the relationship between the *Services and Service Costs* component and the *Outcomes* component of the framework, taking into account the findings of the first report regarding consumer characteristics. It describes the services consumers receive and the short- and long-term outcomes they achieve.

---

[3] The first interim report (Hayward and Tashjian, 1995) contained profiles of the local offices participating in the study and their environments based primarily on analyses from the 1990 decennial census and a mail survey of each of the 37 local VR offices participating in the study. The second interim report (Hayward and Tashjian, 1996) described (1) characteristics of current and former VR consumers; (2) history of labor force participation among VR consumers; and (3) consumers' perspectives of their VR services, service providers, and other aspects of their involvement with the VR program. The third interim report (Hayward, 1998) contained descriptive findings on characteristics of persons who achieved an employment outcome, including work history and details of post-VR employment and earnings status. The final interim report (Hayward and Schmidt-Davis, 2000) contained findings regarding the VR participation of transitional youth with disabilities.

The Third Final Report will build on the prior two reports by looking at the additional influence of two other components of the framework on consumer outcomes—that is, the *Local Economic and Population Characteristics* and the *Organizational Culture and Resources* components and their relationship to consumers' short- and long-term outcomes. The Fourth Final Report will encompass the entire conceptual framework by synthesizing all study findings and by addressing the following overall study question: Given the relationship among consumer characteristics, contextual factors, and VR services, what are the results of the VR program? We have also planned two research briefs, *Analysis of Consumer Referral and Acceptance Rates* and *Costs of Eligibility Determination*, that will examine issues of more limited scope than those in the longer reports.

Limitations of the Study's Data

As noted earlier, the longitudinal study implemented a design that permits national estimates of characteristics, services, and outcomes among persons with disabilities who applied for VR services, including persons who received VR services and those who applied for services but exited prior to receipt of services. The study implemented a carefully designed two-stage, stratified random sampling design that would permit development of the best available national estimates of the VR consumer population. In reviewing the findings in the study's reports, the reader should be aware of the following limitations of this design.

- Study findings reflect the study's data collection period, which occurred between 1995 and the end of 1999; therefore, findings do not reflect recent changes in the program that may be having an effect on VR services and outcomes;
- In instances where sample sizes are very small (e.g., less than one percent of the sample), findings should be viewed with caution; in general, we do not describe such findings other than including them in tables (e.g., blind reader services, received by 0.3 percent of VR consumers). Small sample sizes may affect findings for groups in which the incidence of disability is small and for analyses that involve reporting of various characteristics in combination;
- The study was designed to provide national estimates of VR services and outcomes and does not provide estimates at the level of State VR agencies or local VR offices. No statements can be made about participants, services, or outcomes for individual agencies or offices.

- The study is not experimental in nature; that is, we studied participants as they received the services that agencies would normally provide—participants were not randomly assigned to specific services. Thus, we cannot conclude that specific services cause specific outcomes. Nevertheless, our analyses, in which we control for differences in individual characteristics, provide an indication of the relationships among services and outcomes.

Chapter 2

VR Services and the VR Process

This chapter presents findings on services that VR consumers received during their participation in the program. First is an overview of the types of services that the VR program makes available to applicants and consumers. Services are grouped into several categories that are useful for analytic purposes, including assessments (four categories), medical, psychological, and mobility-related services (three categories), educational and employment-development services (three categories), miscellaneous support services (one category), and case management services (one category). Next is an overview of consumers' receipt of services within those groups that describes numbers of consumers receiving services overall and the average number of services that consumers received in each of the 12 groups. This chapter also presents findings regarding delivery arrangements for the groups of services.

Then, to provide a context for subsequent chapters that examine specific services in detail for VR consumers overall and for subgroups of interest, the final section of the chapter examines the VR process. This discussion addresses (1) the nature of the relationship between the consumer and counselor in the process of eligibility determination, IPE development, and service delivery; (2) the organization of the counselor function; and (3) consumer perspectives on VR services and outcomes.

Overview of Services That VR Consumers Receive

As specified in Section 103(a) of the Rehabilitation Act, as amended in 1998, VR services for individuals are

> . . . any services described in an individualized plan for employment necessary to assist an individual with a disability in preparing for, securing, retaining, or regaining an employment outcome that is consistent with the strengths, resources, priorities, concerns, abilities, capabilities, interests, and informed choice of the individual. . . .

Such services can include a variety of medical, psychosocial, and other types of assessment; employment-development services like job search training or work adjustment training; vocational training and education (including undergraduate or graduate degree programs);

transportation or housing assistance; technical assistance in development of business plans; tools, licenses, and equipment; services for family members; and virtually any other service that will assist the individual to achieve an employment goal consistent with his or her Individualized Plan for Employment (IPE).

Because one of the key questions of interest to RSA and Congress regarding the operations and effects of the VR program is the relationship between services received and such consumer outcomes as employment, earnings, and other benefits, the VR longitudinal study collected voluminous detail on the services provided to consumers. In all, the study collected detailed information on 57 different services. For analytic purposes, we have organized these services into 12 categories (as shown in Table 2-1):

- cognitive/psychological assessment (3 services),
- education/training assessment (2 services),
- medical/function evaluation (5 services),
- mobility assessment (4 services),
- employment-development services (8 services),
- cognitive/psychosocial services (4 services),
- medical/function services (4 services),
- mobility-related services (7 services),
- postsecondary education services (3 services),
- other education services (7 services),
- miscellaneous support services (7 services), and
- case management services (3 services).

For each of these services, field data collectors recorded the following information from consumers' case files:

- delivery arrangement of service (whether provided, purchased, or arranged);
- dates, duration, and frequency of service;
- actions resulting from the service (i.e., what decisions or next steps in the VR process occurred as a result of the service); and
- costs of services (costs to VR of purchased service, source and estimated amount of comparable benefits, and estimated costs of services provided by agency-employed staff).

Table 2-1. Services Delivered to VR Consumers, by Category

- **Cognitive/psychological assessment**
  - Neuropsychological evaluation
  - Psychological/psychiatric evaluation
  - Social/psychological adjustment evaluation
- **Education/training assessment**
  - Vocational evaluation
  - Educational status evaluation
- **Medical/function evaluation**
  - Medical evaluation
  - Dental evaluation
  - Hearing assessment
  - Vision assessment
  - Speech/communication assessment
- **Mobility assessment**
  - Assistive technology assessment
  - Independent living skills assessment
  - Orientation/mobility assessment
  - Driving assessment
- **Employment-development services**
  - Job development
  - Job placement
  - Job search training
  - Work adjustment
  - Work hardening
  - On-the-job training/job trial
  - Transitional employment
  - Supported employment (as a service)
- **Cognitive/psychosocial services**
  - Counseling
  - Psychological/psychiatric treatment
  - Substance abuse treatment
  - Occupational therapy
- **Medical/function services**
  - Medical services
  - Speech/communication therapy
  - Interpreter services
  - Blind reader services
- **Mobility-related services**
  - AT devices
  - AT services
  - Orientation-mobility therapy
  - Physical therapy
  - Independent living services
  - Personal assistance services
  - Driver training/licensing
- **Postsecondary education services**
  - Four-year college/university
  - Two-year community college
  - Business/vocational training
- **Other education services**
  - Instruction in English as a second language
  - Literacy instruction
  - Instruction in lip reading
  - Instruction in reading Braille
  - Elementary/secondary education
  - General Educational Development (GED) preparation
  - Tutoring
- **Miscellaneous support services**
  - Transportation
  - Vehicle maintenance/repair
  - Maintenance
  - Housing assistance
  - Tools/uniforms/equipment/stock
  - Post-employment services
  - Services to other family members
- **Case management services**
  - Counseling for eligibility determination
  - IPE development
  - IPE amendment

The study provides substantially more detailed information than has been available previously on services, delivery arrangements, and, in particular, the role that individual services play in the consumer's progress.

Data on services came from study participants' VR case files. At the time an individual entered the study, the field data collector abstracted information from the case file; subsequently, the data collector reviewed the case file on a quarterly basis until the individual exited VR and once again one quarter following exit. While generally the files contained sufficient information to support collection of details on services as outlined above, the level of detail and completeness, particularly for such items as comparable benefits, varied widely among the VR offices that participated in data collection activities. Throughout sections of this report that address services, we indicate those items for which data are limited by their lack of availability in consumers' case files.

Over the study's data collection period (January 1995 through December 1999), data collection forms for a total of 88,324 services were completed. Weighted according to the study's sample design, these services represent approximately 9,901,375 services delivered to an estimated 844,013 VR consumers, representing 97.6 percent of all VR consumers whose records indicated that they received VR services. (For 2.4 percent of consumers reported to have received services, case records did not contain sufficient information to determine types or amount of services received.) In some instances (e.g., for ongoing enrollment in universities or community colleges), data collectors completed a separate service form for each year of enrollment. Consequently, the number of services reported above includes some amount of duplication for persons who remained enrolled in an education or training program over several years. Unless otherwise noted, in the chapters of this report that address services the unit of analysis is the individual consumer whose case file indicated that he or she was eligible for VR services and received VR services under an IPE.[1]

Consumers who received VR services averaged 12 services (median 9.0) during their participation in VR (Table 2-2)[2]. Assessment services comprise at least 14 different types of individual services, which were organized into four categories. Most frequent was medical/

---

[1] Case records also indicate that individuals who were not accepted for services and individuals who were accepted but exited VR before completion of an IPE also received some services, principally associated with eligibility determination. Persons not accepted for services averaged 2.5 (median 2.0) services, while those accepted who exited prior to initiation of services under an IPE averaged 3.6 (median 3.0) services. Among the most frequent of these were medical evaluation (27 percent of persons), counseling for eligibility determination (21 percent), and psychological/psychiatric assessment (11 percent).

physical function evaluation, with 62 percent of consumers receiving this type of service. Thirty-five percent received cognitive/psychological assessment services, and nearly one-third (31 percent) received educational or vocational assessment. Very few consumers (6 percent) received mobility-related assessment services.

Table 2-2. Average Number of Services Received by VR Consumers Who Received That Service, by Category of Service

Service category	Consumers receiving service		Number of individual services received	
	Percent	Weighted n	Mean	Median
Overall*	97.6	844,013	11.5	9.0
Cognitive/psychological assessment	34.8	301,201	1.3	1.0
Education/training assessment	30.9	266,810	1.4	1.0
Medical/physical function assessment	61.8	533,984	2.4	2.0
Mobility assessment	6.1	52,493	1.4	1.0
Employment-development services	32.8	283,652	2.2	1.0
Cognitive/psychological services	34.6	299,604	1.8	1.0
Medical/physical function services	16.9	142638	3.7	2.0
Mobility-related services	25.6	221,642	2.6	1.0
Postsecondary education services	32.9	284,810	3.7	2.0
Other education services	3.0	25,722	1.6	1.0
Miscellaneous support services	37.7	325,718	4.0	2.0
Case management	94.8	819,498	2.4	2.0

* For 2.4 percent of persons whose status indicated receipt of services, data on services were missing from the case files. These persons represent 20,602 consumers.

One-third of consumers received employment-development services, such as work adjustment training and job development or placement. Slightly over one-third (35 percent) received cognitive or psychological services. One-fourth received mobility-related services (e.g., assistive technology devices or services), while 17 percent received medical services.

One-third of consumers participated in postsecondary education, while only 3 percent received other education services (e.g., GED preparation, tutoring, instruction in Braille). Nearly two-fifths (38 percent) of consumers received miscellaneous support services, such as transportation or maintenance. Finally, nearly all consumers (95 percent) received case management services, which include activities that occur at the outset of the VR process such as eligibility determination activities and development of the IPE, as well as amendment to the IPE as necessary. Overall, other than case management services, consumers most often received medical evaluation services, followed by miscellaneous support services. About one-third received cognitive/psychological assessment, cognitive/psychological treatment, employment development, or postsecondary education, and one-quarter received mobility-related services.

With regard to service delivery arrangements, the VR program most frequently purchases services from vendors, such as postsecondary institutions, community rehabilitation programs, physicians, and many other providers, to assist consumers in achieving their vocational goals. For a number of services, VR agency staff may deliver services directly or may purchase them (e.g., job development and placement services). Finally, the program may arrange services for consumers who may be eligible to have the costs of those services paid by some other means (e.g., Pell grants for postsecondary tuition). Overall, 96 percent of VR consumers received services that the agency provided directly (Table 2-3)[3]; 87 percent received services that the agency purchased; 28 percent received services arranged by agency staff to be covered under comparable benefits; and 44 percent received a service for which the agency obtained existing records from other sources (e.g., a medical evaluation) in connection with that service.

Delivery arrangements varied substantially according to the category of services delivered (Table 2-3). Predictably, VR agency staff provided all case management services directly. Conversely, VR purchased the majority of assessment services that consumers received. Most of the mobility assessments, cognitive/psychological assessments, and medical evaluations were purchased, as were over half of the education/training assessments. Among assessment services, the category of service that consumers most often received directly from agency staff was educational or vocational assessment. For over half of consumers, the VR agency obtained existing records to document medical status (60 percent); a smaller percentage (39 percent) obtained records in connection with psychological/cognitive assessments.

With the exception of cognitive/psychological services, which included counseling that VR staff provided directly to 84 percent of consumers who received that service, VR obtained needed services through purchase for most consumers. In terms of postsecondary education, for example, for nearly all consumers receiving such services (33 percent), the agency purchased the service (96 percent); about one-fourth also received such services through comparable benefits. Similarly, for nearly three-fourths of consumers receiving employment-development services (about one-third of consumers overall), the agency purchased the service; for about one-third of consumers receiving services in this category, the agency provided the service

Table 2-3. Percentage of VR Consumers Receiving Each Category of VR Services, with Indication of Delivery Arrangements*

Service category	% of consumers
All services**	**97.6**
Agency provided	95.9
Purchased	87.4
Comparable benefits	28.1
VR obtained existing record	44.0
Cognitive/psychological assessment	**34.8**
Agency provided	8.1
Purchased	72.0
Comparable benefits	9.8
VR obtained existing record	38.9
Education/training assessment	**30.9**
Agency provided	42.4
Purchased	54.3
Comparable benefits	7.1
VR obtained existing record	0.0
Medical/physical function assessment	**61.8**
Agency provided	15.2
Purchased	71.0
Comparable benefits	11.9
VR obtained existing record	60.1
Mobility assessment	**6.1**
Agency provided	19.2
Purchased	77.8
Comparable benefits	6.5
VR obtained existing record	1.6
Employment-development services	**32.8**
Agency provided	32.5
Purchased	72.5
Comparable benefits	11.5
VR obtained existing record	0.0
Cognitive/psychological services	**34.7**
Agency provided	83.8
Purchased	13.0
Comparable benefits	17.8
VR obtained existing record	0.0
Medical/physical function services	**16.9**
Agency provided	3.0
Purchased	77.9
Comparable benefits	16.3
VR obtained existing record	0.0
Mobility-related services	**25.6**
Agency provided	7.0
Purchased	92.9
Comparable benefits	11.6
VR obtained existing record	0.0
Postsecondary education services	**32.9**
Agency provided	2.0
Purchased	96.3
Comparable benefits	25.2
VR obtained existing record	0.0
Other education services	**3.0**
Agency provided	7.8
Purchased	71.2
Comparable benefits	18.7
VR obtained existing record	0.0
Miscellaneous support services	**37.7**
Agency provided	19.5
Purchased	91.7
Comparable benefits	2.8
VR obtained existing record	0.1
Case management services	**94.8**
Agency provided	100.0
Purchased	0.0
Comparable benefits	0.0
VR obtained existing record	0.0

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff).

** For 2.4 percent of persons whose status indicated receipt of services, data on services were missing from the case files. These persons represent 20,602 consumers.

directly. In the category of miscellaneous support services (e.g., transportation, housing assistance, or maintenance), nearly all such services were purchased for consumers (92 percent), although VR agency staff did provide such services directly to 20 percent of consumers who received them. Similarly, VR purchased most of the mobility-related (93 percent) or medical services (78 percent) that consumers received.

Overview of the VR Process

Persons with disabilities who apply for VR services typically work with a VR counselor to establish eligibility for VR services. During this time the applicant may receive a variety of assessments to support a determination of eligibility. Following acceptance for services, VR consumers work with their VR counselor to select a vocational goal and develop a plan of services with the intent to enable the consumer to achieve that goal. To support this planning process, consumers may undergo further assessments (e.g., vocational evaluation to help the consumer select a vocational goal and a plan of services) to clarify service needs. Consumer and counselor, with help from others as appropriate, plan the services, set a timetable for receipt of services, determine intermediate objectives to keep the process moving toward the vocational goal, and select the service providers. While the process is generally the same for all consumers, the service plans vary considerably, given the statutory requirement that each consumer will have an *individualized* plan that meets his or her specific goals and needs.

As this overview suggests, the relationship between the consumer and the counselor is at the heart of the VR program; the counselor serves as a gatekeeper for the system, exercising the responsibilities of statute and regulation regarding program eligibility, services, and outcomes; acting as a case manager to arrange a reasonable scope and sequence of services to meet the consumer's needs; and working as a counselor and, often, as an advocate to assist the consumer in his or her movement through the VR service plan and into employment that optimally results in long-term labor force participation. A number of prior studies have documented the importance of the counselor not only as a case manager but also as a key to consumers' persistence in following through with the VR service plan—by working closely with consumers to assist in resolving issues that may pose a challenge to success (e.g., Tashjian et al., 1995; Hayward et al., 1991). In this section, we review data from the study that may provide some insight into that process, including consumers' perspectives on the relationship.

Organization of the Counselor's Functions

According to a survey of VR counselors in offices participating in the longitudinal study, counselors divide their time among a variety of case management, services, and administrative functions. As shown in Table 2-4[4], during a typical month counselors spend an average of 23 hours on eligibility determination activities, and an additional average of 13 hours on vocational evaluation, which often occurs in support of eligibility determination. IPE development requires 24 hours, on average. Counseling with consumers requires nearly a week per month (38 hours, on average), and job development and placement services about 19 hours. Counselors spend over one week per month (44 hours) on file management and documentation, and around 21 hours per month on other activities (including staff meetings or development).

Table 2-4. Organization of the Counselor Function: Time Spent on Counselor Activities per Month

Activity	Time per month Percentage	Hours per month	Average minutes per month per case (caseload = 123)
Eligibility determination			
Mean	13.7	23.0	11.2
Median	10.0	16.7	
Counseling/guidance			
Mean	22.7	37.9	18.5
Median	20.0	33.4	
Vocational evaluation			
Mean	8.0	13.4	6.5
Median	5.0	8.4	
IPE development			
Mean	14.1	23.5	11.5
Median	10.0	16.7	
Job development and placement			
Mean	11.1	18.5	9.0
Median	10.0	16.7	
File management and documentation			
Mean	26.2	43.8	21.3
Median	20.0	33.4	
Other activities			
Mean	12.3	20.5	10.0
Median	10.0	16.7	

As this table also reports, VR counselors average a case load of 123 persons. While the flow of persons into and through the system is not constant (i.e., the number of persons applying for VR or exiting VR varies from month to month), given the average case load size, the typical counselor has relatively little time available to provide services to any one consumer. On average, a counselor spends less than 15 minutes per person per month on eligibility determination, less than 20 minutes on counseling activities, and about 20 minutes per month on file management. It is useful to consider these constraints in an examination of the VR process and the range of services that VR consumers receive either directly from their counselor or through the counselor's efforts to arrange and facilitate services to meet consumers' vocational goals and other related needs.

Eligibility and IPE Development Activities

VR counselors devote over one-third of their time to services associated with eligibility determination and IPE development, not including required file documentation. As shown in Table 2-5[5], the VR counselor was the principal agency staff person involved in eligibility determination (99 percent of consumers' counselors worked with the consumer to assess eligibility). Other staff involved included a psychologist (for 10 percent of consumers), casework technician (8 percent), or vocational evaluator (6 percent). Counselors most frequently consulted a medical evaluation to support eligibility decisions (80 percent of consumers), followed by other evaluations (e.g., psychological or educational) (60 percent) and vocational evaluation (22 percent). Consumer input was a key source of information for 88 percent of consumers. Other sources of input for eligibility decisions included service providers

Table 2-5. Details of Eligibility Determination Process

Details of eligibility determination	Percent
Staff involved	
VR counselor	99.4
Psychologist	10.2
Casework technician	8.2
Vocational evaluator	6.1
Other VR counselor	2.1
Other	9.4
Information used to support eligibility determination	
Medical evaluation	80.0
Other evaluation	60.0
Vocational evaluation	21.9
Input from consumer	87.5
Input from service providers	28.2
Input from family/friends/advocates	17.2
Input from education/training staff	11.7
Input from previous employers	4.0
Clear evidence of active consumer involvement	93.8

(28 percent), family, friends, or advocates (17 percent), or education or training staff (12 percent). Nearly all files (94 percent) contained clear evidence of consumer involvement in the eligibility determination process.

As noted earlier in this chapter, to support both eligibility and planning decisions, VR counselors often purchase, arrange, or conduct assessments of consumers' medical or other status. Data from the study indicated that 74 percent of consumers received some form of assessment service in connection with eligibility determination, and 50 percent received assessment services in connection with selection of vocational goal and other activities associated with IPE development. (Overall, 81 percent of VR consumers received at least one assessment service during their VR services.) Systemwide, 62 percent of assessment services delivered to VR applicants and consumers occurred at the eligibility determination stage, while 38 percent were associated with service planning.

Tables 2-6 and 2-7[6] report information on the service planning and implementation process. Key staff working with the consumer to develop the IPE included the VR counselor, a vocational evaluator, casework technician, and a VR counselor other than the consumer's counselor (typically a supervisor). In addition to the vocational goal, IPEs typically included three intermediate objectives. As shown in Table 2-6, IPE documentation indicated that consumers achieved 43 percent of those intermediate objectives and failed to achieve about 12 percent. Nearly one-third were still in process at the time study data collection ended for the consumer.

Table 2-6. Details of IPE Process

Details of IPE	Percent
Staff involved	
VR counselor	100.0
Vocational evaluator	98.3
Casework technician	100.0
Other VR counselor	100.0
Other	99.7
Number of intermediate objectives	
Mean	2.9
Median	3.0
Achievement of intermediate objectives	
Achieved	42.7
Not achieved	11.5
Currently working on objective	31.1
Status not available	11.0
Missing	3.7

Nearly all (96 percent) IPEs were signed by the consumer or a representative (Table 2-7); 92 percent identified the providers of services to be delivered under the IPE; 88 percent identified related services and benefits to be delivered; and 88 percent specified delivery of services in an appropriately integrated setting. In cases where appropriate, 99 percent of IPEs

Table 2-7. Documentation of IPE Components Among Consumers Who Completed an IPE

IPE component	Percent
Signature of consumer or representative	95.9
Specification of terms for provision of services in the most integrated setting possible	87.6
List of providers of services	92.2
Identification of related services and benefits to enhance consumer's capacity to achieve IPE objectives	88.0
Preparation of the IPE in the consumer's native language	99.1
Statement of rehabilitation technology services to be provided	37.5
List of specific on-the-job or other personal assistance services to be provided	39.2
Statement of consumer involvement in selection of goals	69.4
Statement of consumer involvement in setting of intermediate objectives	63.3
Statement of consumer involvement in selecting services	63.6
Statement of consumer involvement in selecting service providers	59.7
Statement of consumer involvement in determining the process through which services would be provided	59.1

Multiple responses were possible.

were in the consumer's native language. Around two-fifths listed specific other services to be provided, including on-the-job or other personal assistance and rehabilitation technology services. Around two-thirds of IPEs documented consumers' involvement in IPE development activities, including selection of goals (69 percent), setting of intermediate objectives (63 percent), selection of services (64 percent) and providers (60 percent), and decisions regarding the service process (59 percent). Overall, 24 percent of VR consumers amended their IPE at least once during VR services; 18 percent changed their vocational goal.

The Consumer-Counselor Relationship

We examined two aspects of the relationship between the consumer and his or her VR counselor from the perspective of consumers. First was a series of items designed to assess the extent to which consumers believed they had sufficient control of decisions about goals, services, and providers, and had adequate choices available in making decisions during planning and services. The second was a series of items examining consumers' perspectives on the quality of the relationship with the counselor as the two worked together to plan and implement services. Together, these topics provide insight on the importance of the consumer-counselor relationship as one factor in whether the VR experience is a productive one for consumers.

Table 2-8 reports findings regarding the decision process associated with selection of the vocational goal, determination of services to be provided, and availability of service providers.

As shown, over one-third of consumers indicated that they selected their vocational goal; an additional 46 percent reported that the decision on vocational goal was a joint one between consumer and counselor. Only 7 percent believed that the counselor made the decision on his/her own. Overall, 81 percent of consumers believed that they had enough choice in selection of the goal, and 80 percent were either very or mostly satisfied with that goal. Six percent were very dissatisfied.

In terms of services, 20 percent of consumers reported making the decisions about services, and 67 percent reported that they and their counselor made the decision together. Ten percent reported that the counselor made the decision. Nearly 50 percent were very satisfied with available services, and 29 percent were mostly satisfied. Six percent were very dissatisfied. The findings regarding selection of providers, however, were somewhat different. Two-fifths of consumers reported that their counselor was the primary decision maker regarding service providers; an additional two-fifths reported that they made the decision either alone or in concert with their counselor. Nevertheless, 81 percent believed that the counselor had provided sufficient information regarding providers to permit the consumer to make the best choices. This apparent discrepancy may be explained in part by the fact that in many localities, a limited number of providers for specific services are available, thus reducing the range of options that a consumer can consider. Overall, one-half of consumers reported the perception that they were in charge of decisions during the VR process to a great extent; an additional 41 percent reported being in charge to some extent. Nine percent did not believe they were in charge of decision making regarding their VR services.

As shown in Table 2-9[7], 89 percent of VR consumers reported that their VR counselor was sufficiently attentive to their needs, showing interest, attention, and concern. Eleven percent commented that their counselor rarely or never showed adequate concern. Seventy-seven percent of consumers reported that their counselor was always willing to listen to their ideas and suggestions regarding their VR services; an additional 15 percent commented that their counselor sometimes listened. Regarding the eligibility process, 79 percent of consumers believed that VR made the determination of eligibility quickly enough. Overall, three-quarters

Table 2-8. Consumer's Perspectives on the Amount of Choice and Control They Exercised in Working with Their VR Counselor to Develop and Implement Their IPE

Consumer perspective	Percent
Decision process for selection of vocational goal	
Consumer made the decision	35.6
Consumer and counselor decided together	45.8
VR counselor made the decision	6.5
Consumer already had a job	5.6
Other	6.9
Consumer believed he/she had enough choice in selection of vocational goal	
Yes	81.3
No	18.7
Consumer's level of satisfaction with services	
Very satisfied	55.3
Mostly satisfied	24.5
Indifferent	7.9
Somewhat dissatisfied	6.8
Very dissatisfied	5.5
Decision process for selection of services	
Consumer made the decision	19.9
Consumer and counselor decided together	67.4
VR counselor made the decision	9.5
Other	3.3
Consumer's level of satisfaction with available services	
Very satisfied	48.4
Mostly satisfied	29.3
Indifferent	8.4
Somewhat dissatisfied	8.2
Very dissatisfied	5.7
Decision process for selection of service providers	
Consumer made the decision	21.9
Consumer and counselor decided together	17.8
VR counselor made the decision	41.4
Other	19.0
Consumer's level of satisfaction with available service providers	
Very satisfied	58.3
Mostly satisfied	25.1
Indifferent	6.0
Somewhat dissatisfied	6.0
Very dissatisfied	4.6
Counselor provided adequate information about service providers so that consumer could make the best choices	
Yes	80.6
No	19.4
Consumer's overall perception of being in charge of decisions during the VR process	
To a great extent	50.1
To some extent	40.8
Not at all	9.1

of consumers were very or mostly satisfied with their counselors' efforts to help them work toward achieving an employment outcome; 8 percent were very dissatisfied with their counselor's efforts. In general, consumers reported relatively high levels of satisfaction with the quality of their relationship with their VR counselor, believing that the counselor was working for them to assist in meeting their employment-related and support needs as they moved through the VR process. A relatively small percentage, around 10 percent, were consistently dissatisfied with their interactions with their counselor, with their counselor's efforts and concern, and with their control over their VR services. Later chapters of this report explore the implications of the consumer-counselor relationship as it affects the likelihood that consumers are able to achieve their vocational goals through exiting VR with an employment outcome.

Table 2-9. Consumers' Perspectives on the Quality of Their Relationship with Their VR Counselor

Consumer perspective	Percent
VR counselor showed sufficient interest, attention, and concern for consumer's needs during VR services	
Always	71.8
Sometimes	17.2
Rarely	6.0
Never	4.9
VR counselor was willing to listen to consumer's ideas and suggestions	
Always	76.6
Sometimes	15.4
Rarely	4.4
Never	3.6
VR completed eligibility determination quickly enough	
Yes	79.4
No	20.6
Consumer was satisfied with VR counselor's effort to help him/her work toward obtaining employment	
Very satisfied	48.3
Mostly satisfied	26.2
Indifferent	9.2
Somewhat dissatisfied	8.0
Very dissatisfied	8.3

Chapter 3

Receipt of Specific VR Services

This chapter reports, for each of the 12 broad categories of services described in Chapter 2, details of individual services that consumers received during their participation in VR. Within each category of services, we report the specific details that follow:

- number and percentage of consumers who received each service;
- delivery arrangements;
- duration;[1]
- costs of purchased services and estimated costs of services arranged through comparable benefits, where sufficient data were available;
- average number of each service for consumers receiving those services; and
- actions resulting from the service in terms of consumers' progress through VR services.

For services that very few consumers received (generally less than 10,000 or 1 percent of VR consumers), we have limited data contained in the report regarding the numbers and percentages of persons who received the services; the size of the sample representing the group is too small to warrant reporting of other details regarding those services.

Cognitive/Psychological Assessment Services

Cognitive or psychological assessment included psychological/psychiatric evaluation, neuropsychological evaluation, and social/psychosocial evaluation. Thirty percent of VR consumers received psychological or psychiatric evaluation (Table 3-1)[8], conducted over a period of between one day and approximately one month.[2] VR agencies purchased these evaluations for most of their consumers (71 percent) with an average cost of $215 (median $170)

---

[1] In many instances, multiple delivery arrangements occurred. For example, for community or four-year college, the services might be purchased, as in the case of books or supplies, and arranged under comparable benefits (a Pell grant for tuition and fees). Hence percentages showing delivery arrangements may sum to less than or more than 100 percent.

[2] For most (69 percent) consumers, this service occurred over one day; comparable percentages were 52 percent for neuropsychological evaluations and 65 percent for evaluation of social/psychological adjustment.

(Table 3-2 [9]), although they also often obtained existing records in connection with these assessments (40 percent). Very few consumers received either a neuropsychological evaluation (4 percent of consumers) or an assessment of social/psychosocial adjustment (3 percent). Among those who did receive such assessments, VR typically purchased the service, though again the agency often obtained existing records in connection with the assessment. Average costs to VR for neuropsychological assessment was $412 (median $420) and $430 (median $150) for social/psychosocial adjustment assessment.

Consumers receiving any of these assessments generally received only one (Table 3-3)[10]. The most frequent action resulting from psychological evaluation was acceptance for VR services (92 percent of consumers receiving this service); the resulting action for 30 percent of consumers was ongoing counseling. Actions resulting from neuropsychological evaluation included acceptance for VR services (81 percent of consumers receiving this service), psychological counseling (19 percent), cognitive rehabilitation (17 percent), or vocational training (17 percent). Social adjustment evaluations, received by a very small number of consumers, most often resulted in recommendation of an occupational area (39 percent) or ongoing counseling (38 percent).

Table 3-1. Percentage of Consumers Receiving Cognitive or Psychological Assessment Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Psychological/psychiatric evaluation (262,943)	**30.4**	**35.6**	**1.0**
Agency provided	8.3		
Purchased	70.8		
Comparable benefits	9.5		
VR obtained existing record	39.8		
Neuropsychological evaluation (36,392)	**4.2**	**33.6**	**1.0**
Agency provided	2.5		
Purchased	77.5		
Comparable benefits	11.2		
VR obtained existing record	27.1		
Social/psychosocial adjustment evaluation (23,039)	**2.7**	**61.1**	**1.0**
Agency provided	9.2		
Purchased	52.8		
Comparable benefits	12.9		
VR obtained existing record	42.5		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-2. Costs of Purchased Services and Comparable Benefits for Cognitive or Psychological Assessment Services

Services (weighted n)	% receiving service	Costs Mean	Costs Median
Psychological/psychiatric evaluation (262,943)	30.4		
Purchased		$215	$170
Comparable benefits		N/A	N/A
Neuropsychological evaluation (36,392)	4.2		
Purchased		$412	$420
Comparable benefits		N/A	N/A
Social/psychosocial adjustment evaluation (23,039)	2.7		
Purchased		$430	$150
Comparable benefits		N/A	N/A

BEST COPY AVAILABLE

Table 3-3. Results of Cognitive Assessment Services Among VR Consumers Who Received Those Services

Services (weighted n)	Services received Mean	 Median	 Percent
Psychological/psychiatric evaluation (262,943)	**1.2**	**1.0**	**30.4**
Ongoing counseling			30.0
Drug intervention			8.7
Hospitalization or other residential care			2.6
Acceptance for VR services			91.8
Extended evaluation			5.8
Other			14.9
Neuropsychological evaluation (36,392)	**1.1**	**1.0**	**4.2**
Cognitive rehabilitation			16.7
Psychological counseling			18.5
Further education			11.8
Vocational training			16.7
Physical therapy			5.6
Social/recreational therapy			4.2
Acceptance for VR services			81.3
Extended evaluation			6.6
Other			22.4
Social/psychosocial adjustment evaluation (23,039)	**1.1**	**1.0**	**2.7**
Personal adjustment training			15.7
Work adjustment training			17.2
Ongoing counseling			38.1
Occupational fields			39.3
Other			43.5

Multiple responses were possible.

Education/Training Assessment Services

Over one-fourth of consumers received a vocational assessment as part of eligibility determination or IPE development (Table 3-4)[11], while relatively few consumers (7 percent) participated in an evaluation of educational status or needs. In terms of vocational evaluation, 9 percent of consumers received this service at the office from which they received VR services, working with their counselor and other VR agency staff, while 21 percent received this service off-site, primarily as a purchased service from a vendor (74 percent). Average cost of purchased vocational evaluation was $964 (median $475) (Table 3-5)[12]. In-house evaluations averaged 27 days (median 4.0), while off-site evaluations were longer (mean 49 and median 18 days). As shown in Table 3-6 [13], the principal actions resulting from vocational evaluation were determination of an appropriate occupational area (84 percent of consumers who received this service on-site; 77 percent for off-site) and establishment of a vocational goal (73 percent on-site and 61 percent off-site). Other actions included recommendation of counseling (65 and 37 percent), work adjustment services (16 and 22 percent), and vocational training (26 percent in both cases).

Agency staff provided nearly half (47 percent) of the educational status evaluations that consumers received, with 25 percent purchased, at an average cost of $296 (median $130) and 20 percent arranged through comparable benefits. These evaluations extended over a period of 95 days, on average (median of 15) (see Tables 3-4 and 3-5). For educational status evaluation, the chief resulting actions were enrollment in an education program: 22 percent receiving this service enrolled in vocational training; 11 percent in a 2-year postsecondary program, and 9 percent in a 4-year postsecondary program (see Table 3-6).

Table 3-4. Percentage of Consumers Receiving Education or Training Assessment Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Vocational evaluation			
In-house (78,278)	**9.0**	**27.0**	**4.0**
Agency provided	100.0		
Purchased	0.0		
Comparable benefits	0.0		
Off-site (177,837)	**20.6**	**48.6**	**18.0**
Agency provided	19.8		
Purchased	74.4		
Comparable benefits	4.2		
VR obtained existing record	0.0		
Educational status evaluation (61,160)	**7.1**	**95.4**	**15.0**
Agency provided	46.7		
Purchased	25.2		
Comparable benefits	19.5		
VR obtained existing record	0.0		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-5. Costs of Purchased Services and Comparable Benefits for Education and Training Assessment Services

Services (weighted n)	% receiving service	Costs Mean	Costs Median
Vocational evaluation (238,856)	**28.3**		
Purchased		$964	$475
Comparable benefits		N/A	N/A
Educational status evaluation (61,160)	**7.1**		
Purchased		$296	$130
Comparable benefits		N/A	N/A

BEST COPY AVAILABLE

Table 3-6. Results of Education or Training Assessment Services Among Consumers Who Received Those Services

	Services received		
Services (weighted n)	**Mean**	**Median**	**Percent**
Vocational evaluation			28.0
In-house (78,278)	**1.1**	**1.0**	**9.1**
Determined occupational areas			84.0
Set vocational goal			73.0
Work adjustment training			16.4
Educational program			30.4
Vocational training			26.2
Counseling			64.7
Job placement			13.6
Extended evaluation			6.5
Supported employment			2.0
Closed, not eligible			0.4
Off-site (177,837)	**1.2**	**1.0**	**20.6**
Determined occupational areas			77.3
Set vocational goal			61.2
Work adjustment training			22.3
Educational program			17.1
Vocational training			26.2
Counseling			37.0
Job placement			14.6
Extended evaluation			9.1
Supported employment			6.9
Educational status evaluation (61,160)	**1.1**	**1.0**	**7.1**
Enrolled in basic skills/literacy program			4.8
Enrolled in GED/high school program			7.3
Enrolled in vocational training program			21.9
Enrolled in 2-year academic program			10.9
Enrolled in 4-year academic program			9.4
Enrolled in other program			44.2

Multiple responses were possible.

Medical or Function Assessment Services

Over half of VR consumers received medical or function evaluations (62 percent, see Table 2-2), including medical evaluation (54 percent), assessment of vision function (13 percent), hearing function (9 percent), speech/communication function (1 percent), or dental evaluation (2 percent) (Table 3-7)[14]. The agency purchased medical evaluations (63 percent) and obtained extant records (61 percent) as supporting documentation. For a small percentage of consumers, the agency conducted a medical evaluation (15 percent) or arranged this service through comparable benefits (10 percent). The cost of purchased evaluations averaged $170; those arranged through comparable benefits averaged $541 (Table 3-8)[15]. Duration of service was typically 2 days (median 1.0). Consumers mostly had vision or hearing assessments purchased on their behalf (90 percent and 85 percent, respectively), although agency staff provided some vision assessments to consumers (19 percent). Purchased vision assessments averaged $86, while those arranged through comparable benefits averaged $39. Comparable cost for purchased hearing assessment services was $115, on average. Some consumers spent extensive time in these assessments (33 days for vision and 45 days for hearing assessments), although generally the assessment occurred in 1 day. Nearly 60 percent of hearing assessments occurred in one-day; the comparable figure for vision assessment was 52 percent.

The chief action resulting from medical evaluations was acceptance for VR services (87 percent of consumers who received this service) (Table 3-9)[16]. Other resulting actions included restrictions on occupational areas or activities (34 percent), further evaluation (30 percent), or medical treatment (20 percent). For most consumers receiving a vision assessment, the resulting action was purchase of a low vision aid (57 percent), while for those with a hearing assessment it was purchase of a hearing aid (67 percent).

Table 3-7. Percentage of Consumers Receiving Medical or Physical Function Assessment Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days)	
		Mean	Median
Medical evaluation (467,784)	**54.1**	**2.0**	**1.0**
Agency provided	14.5		
Purchased	63.0		
Comparable benefits	10.2		
VR obtained existing record	60.9		
Vision assessment (107,936)	**12.5**	**32.7**	**1.0**
Agency provided	19.1		
Purchased	89.8		
Comparable benefits	12.3		
VR obtained existing record	39.2		
Hearing assessment (77,547)	**9.0**	**44.8**	**1.0**
Agency provided	4.4		
Purchased	85.4		
Comparable benefits	7.5		
VR obtained existing record	26.7		
Dental evaluation (16,217)	**1.9**	**1.4**	**1.0**
Agency provided	0.8		
Purchased	96.1		
Comparable benefits	1.6		
VR obtained existing record	11.8		
Speech/communication assessment* (9,346)	**1.1**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

BEST COPY AVAILABLE

Table 3-8. Costs of Purchased Services and Comparable Benefits for Medical or Physical Function Assessment Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Medical evaluation (467,784)	**54.1**		
Purchased		$170	$46
Comparable benefits		$541	$100
Vision assessment (107,936)	**12.5**		
Purchased		$86	$60
Comparable benefits		$39	$16
Hearing assessment (77,547)	**9.0**		
Purchased		$115	$87
Comparable benefits		N/A	N/A
Dental evaluation (16,217)	**1.9**		
Purchased		$315	$58
Comparable benefits		N/A	N/A

Table 3-9. Results of Medical or Physical Function Assessment Services Among Consumers Who Received Those Services

Services (weighted n)	Services received Mean	Median	Percent
Medical evaluation (467,784)	**2.0**	**1.0**	**54.1**
Assistive technology assessment			9.6
Restricted occupational areas/activities			33.8
Medical treatment			20.1
Physical, occupational, or other therapy			8.8
Acceptance for VR services			86.9
Acceptance for extended evaluation			5.7
Further evaluation			30.3
Other			15.9
Vision assessment (107,936)	**1.7**	**1.0**	**12.5**
Low vision aid			57.2
Referral for medical treatment			8.4
Rehabilitation teaching			6.0
Orientation and mobility instruction			5.8
Rehabilitation technology			3.8
Other			50.8
Hearing assessment (77,547)	**1.4**	**1.0**	**9.0**
Hearing aids			67.0
Closed captioned TV			0.8
TTY/TDD			5.6
Signaling devices			3.8
Pocket talker			0.2
Computer-assisted note taking devices			0.4
Hearing ear dog			0.0
Other			29.6
Dental evaluation (16,217)	**1.4**	**1.0**	**1.9**
Dental treatment			76.7
Corrective device			24.8
Further evaluation			15.3
Other			33.0

Multiple responses were possible.

Mobility Assessment Services

Mobility assessments included evaluation of the need for assistive technology (AT), orientation/mobility assessment, driving assessment, and independent living skills assessment. Very few consumers received such assessments: 3.3 percent received an AT assessment, and slightly over 1 percent received the other services (Table 3-10)[17]. When consumers did receive these assessments, the VR agency generally purchased the service: 78 percent for AT assessment, 68 percent for orientation/mobility status, and 92 percent for driving assessment. As shown in Table 3-11 [18], AT assessments averaged $481; orientation/mobility assessments averaged $354; and driving assessments cost $334, on average. Length of service ranged from an average of 41 days (median 1) for AT assessment[3] to 50 days (median 1) for driving assessment. Actions resulting from these assessments were generally a service: the result for 75 percent of consumers receiving AT assessment was an AT device, while 52 percent of consumers receiving orientation/mobility assessment were recommended for orientation/mobility services (Table 3-12)[19]. For driving assessment, the resulting action for 33 percent of consumers was a driver's license; for 59 percent the action was enrollment in driver's training.

---

[3] For slightly over half (52 percent) of consumers receiving these services, the service lasted one day.

Table 3-10. Percentage of Consumers Receiving Mobility Assessment Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Assistive technology assessment (28,185)	**3.3**	**41.4**	**1.0**
Agency provided	19.0		
Purchased	77.8		
Comparable benefits	5.5		
VR obtained existing record	0.0		
Orientation/mobility assessment (12,280)	**1.4**	**31.7**	**5.0**
Agency provided	19.2		
Purchased	67.8		
Comparable benefits	5.0		
VR obtained existing record	0.0		
Driving assessment (12,208)	**1.4**	**50.1**	**11.0**
Agency provided	9.2		
Purchased	91.5		
Comparable benefits	4.4		
VR obtained existing record	0.0		
Independent living skills assessment* (8,679)	**1.0**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-11. Costs of Purchased Services and Comparable Benefits for Mobility-Related Assessment Services

Services (weighted n)	% receiving service	Costs Mean	Costs Median
Assistive technology assessment (28,185)	**3.3**		
Purchased		$481	$246
Comparable benefits		N/A	N/A
Orientation/mobility assessment (12,280)	**1.4**		
Purchased		$354	$311
Comparable benefits		N/A	N/A
Driving assessment (12,208)	**1.4**		
Purchased		$334	$283
Comparable benefits		N/A	N/A

Table 3-12. Results of Mobility Assessment Services Among Consumers Who Received Those Services

	Services received		
Services (weighted n)	**Mean**	**Median**	**Percent**
Assistive technology assessment (28,185)	**1.2**	**1.0**	**3.3**
Assistive technology device			74.8
Assistive technology service			37.9
Work site modification			17.4
Job accommodation			12.2
Residential modification			15.1
Other			34.9
Orientation/mobility assessment (12,280)	**1.1**	**1.0**	**1.4**
Orientation/mobility services			51.9
Job modification			12.0
Residential accommodation			15.7
Physical therapy			19.0
Other			53.5
Driving assessment (12,208)	**1.2**	**1.0**	**1.4**
Approved for driver's license			32.8
Driver's training			58.5
Disapproved for driver's license			12.9
Other			38.2

Multiple responses were possible.

Employment-Development Services

A number of the services that VR makes available to consumers through direct provision or through purchase have the objective to support employability, facilitate movement into the labor force, and improve the likelihood that consumers will be successful at maintaining labor force attachment. Such services include job development and placement, job search training, work adjustment or hardening, on-the-job training or job trials, and supported or transitional employment. These services differ from those we have classified as education services in that their focus is not on specific training for specific occupations, but rather on ability to learn the "culture" of work and to obtain, maintain, and advance in a career. As shown in Table 3-13 [20], the employment-development service that consumers most often received was job placement; over 90,000 persons (11 percent) received this service, averaging nearly 140 days (median of 95 days). For about half of these consumers the agency purchased the service at an average cost of $995 (Table 3-14)[21]; other delivery arrangements included agency provided service (37 percent) or arranging the service through comparable benefits (18 percent). The average was 1.2 among persons who received job placement services (median 1.0) (Table 3-15). The action resulting from this service was an employment outcome for 63 percent of consumers.

Somewhat fewer consumers (10 percent) received job development services. The agencies purchased this service for 63 percent of consumers who received it at an average cost of $1,119, and provided it directly for 39 percent. The average length of time from initiation to completion of the service was 155 days (median of 93 days). This service resulted in the offer of placement in a specific job for 45 percent of consumers receiving the service; 31 percent exited with an employment outcome (Table 3-15)[22].

Eight percent of consumers received work adjustment training over an average of 168 days (median of 91 days). Consumers receiving work adjustment averaged 1.8 such services (median of 1.0). The agency purchased 80 percent of these services at an average cost of $2,342, and also provided services directly for 25 percent of consumers receiving this service. Two-thirds of participants completed their work adjustment training; for 43 percent, the service resulted in job placement; an additional 11 percent entered supported employment following work adjustment services, while 13 percent entered vocational training.

The agency purchased nearly all of the supported employment services (93 percent) that consumers received, with an average cost of $3,141. Seven percent (around 62,000) received such services, with an average duration of 166 days (median of 110 days). The most frequent action resulting from receipt of supported employment services was maintenance of the supported employment placement; 37 percent were placed in a specific job, while 19 percent dropped out of supported employment services. Forty-three percent exited VR with an employment outcome following services.

Approximately 61,000 persons (7 percent of consumers) participated in job search training; the agency purchased this service for 61 percent of these consumers, with cost averaging $646, and provided it directly to 40 percent. Training lasted 69 days on average (median of 45 days); with consumers averaging 1.3 services (median of 1.0), indicating that a small number of persons received the service at least twice. The most frequent action resulting from this service was placement in a job (48 percent of consumers who received the service), and one-third exited the program with an employment outcome.

Finally, around 31,000 persons (3.6 percent) participated in on-the-job training or job trails, nearly always purchased from a vendor (81 percent of those receiving the service). The average cost of this service was $1,497. The participation period averaged 116 days (median 62). The most frequent action resulting from this participation was placement in a job (55 percent of consumers who received the service), with 40 percent achieving an employment outcome.

Table 3-13. Percentage of Consumers Receiving Employment-Development Services, by Type of Service, Delivery Arrangements,* and Duration

Service (weighted n)	% of consumer receiving service	Duration (in days)	
		Mean	Median
Job placement (91,400)	**10.6**	**138.2**	**95.0**
Agency provided	37.4		
Purchased	49.9		
Comparable benefits	17.8		
Job development (83,686)	**9.7**	**155.1**	**93.0**
Agency provided	39.1		
Purchased	62.7		
Comparable benefits	7.0		
Work adjustment (69,495)	**8.0**	**168.2**	**91.0**
Agency provided	24.9		
Purchased	79.1		
Comparable benefits	9.8		
Supported employment (61,821)	**7.2**	**165.5**	**110.0**
Agency provided	5.6		
Purchased	92.9		
Comparable benefits	4.4		
Job search training (61,145)	**7.1**	**68.7**	**45.0**
Agency provided	40.1		
Purchased	60.8		
Comparable benefits	4.0		
On-the-job training/job trial (31,244)	**3.6**	**116.2**	**62.0**
Agency provided	11.5		
Purchased	81.1		
Comparable benefits	7.2		
Transitional employment* (5,081)	**0.6**		
Work hardening* (5,648)	**0.4**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-14. Costs of Purchased Services and Comparable Benefits for Employment-Development Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Job placement (91,400)	**10.6**		
Purchased		$995	$600
Comparable benefits		N/A	N/A
Job development (83,686)	**9.7**		
Purchased		$1,119	$490
Comparable benefits		N/A	N/A
Work adjustment (69,495)	**8.0**		
Purchased		$2,342	$1,350
Comparable benefits		N/A	N/A
Supported employment (61,821)	**7.2**		
Purchased		$3,141	$2,000
Comparable benefits		N/A	N/A
Job search training (61,145)	**7.1**		
Purchased		$646	$258
Comparable benefits		N/A	N/A
On-the-job training/job trial (31,244)	**3.6**		
Purchased		$1,497	$1,022
Comparable benefits		N/A	N/A

Table 3-15. Results of Employment-Development Services Among Consumers Who Received Those Services

Service (weighted n)	Services received Mean	 Median	 Percent
Job placement (91,400)	**1.2**	**1.0**	**10.6**
Exited with employment outcome			62.9
Exited without employment outcome			2.9
Other			33.7
Job development (83,686)	**1.4**	**1.0**	**9.7**
Offered a specific job			45.7
Exited with employment outcome			30.6
Exited without employment outcome			5.2
Other status change			1.3
Other			39.9
Work adjustment (69,495)	**1.8**	**1.0**	**8.0**
Completed program			67.2
Dropped out			16.4
Entered training			12.6
Entered education			3.3
Job placement			42.7
Supported employment			10.6
Exited with employment outcome			25.2
Exited without employment outcome			7.0
Exited other			1.0
Other			43.8
Supported employment (61,821)	**1.9**	**1.0**	**7.2**
Started a specific job			36.5
Maintained a job placement			70.0
Dropped out			18.9
Exited with employment outcome			42.8
Exited without employment outcome			6.2
Exited other			1.3
Other			38.3
Job search training (61,145)	**1.3**	**1.0**	**7.1**
Job placement			48.3
Exited with employment outcome			32.9
Exited without employment outcome			6.7
Exited other			0.2
Other			38.6
On-the-job training/job trial (31,244)	**1.5**	**1.0**	**3.6**
Dropped out			8.9
Job placement			54.6
Exited with employment outcome			40.2
Exited without employment outcome			4.4
Exited other			0.9
Other			35.5

Multiple responses were possible.

Cognitive or Psychological Services

As shown in (Table 3-16[23]), nearly 30 percent of VR consumers (257,237 persons) participated in counseling, most of the time with their VR counselor (97 percent); a small percentage of counseling was purchased (3 percent), with an average cost of $540 (Table 3-17)[24], and 12 percent of the service was arranged through comparable benefits. The duration of this service was nearly a year, averaging 349 days (median 197). Among the actions resulting from participation in counseling (Table 3-18)[25] were job placement (33 percent), enrollment in an educational program (23 percent), enrollment in vocational training (22 percent), and a change in vocational goal (17 percent). For 35 percent of consumers, the resulting action was achievement of an employment outcome.

Six percent of consumers received psychological or psychiatric treatment services, either purchased on their behalf (49 percent) at an average cost of $531 or arranged through comparable benefits (31 percent). Duration of the service among participants was 211 days, on average (median 109). Among the actions resulting from this service were job placement (14 percent), interruption of VR services (10 percent), enrollment in work adjustment training (9 percent), and achievement of an employment outcome (13 percent). For a substantial percentage of consumers (51 percent) case records indicated other outcomes.

Among the 14,000 persons who received substance abuse services (less than 2 percent of VR consumers), the service was most frequently arranged through comparable benefits (47 percent). Average cost when purchased by VR was $290. Actions resulting from this service included job placement (23 percent), interruption of services (11 percent), achievement of an employment outcome (25 percent), and other actions (44 percent).

Table 3-16. Percentage of Consumers Receiving Cognitive or Psychological Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Counseling (257,237)	**29.8**	**348.6**	**197.0**
Agency provided	96.9		
Purchased	2.8		
Comparable benefits	12.2		
Psychological/psychiatric treatment (52,595)	**6.1**	**210.6**	**109.0**
Agency provided	5.5		
Purchased	49.0		
Comparable benefits	30.7		
Substance abuse treatment (13,989)	**1.6**	**146.4**	**63.0**
Agency provided	3.1		
Purchased	29.5		
Comparable benefits	46.8		
Occupational therapy (6,539)	**0.8**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-17. Costs of Purchased Services and Comparable Benefits for Cognitive or Psychological Treatment Services

Services (weighted n)	% receiving service	Costs Mean	Costs Median
Counseling (257,237)	**29.8**		
Purchased		$540	$390
Comparable benefits		N/A	N/A
Psychological/psychiatric treatment (52,595)	**6.1**		
Purchased		$531	$240
Comparable benefits		N/A	N/A
Substance abuse treatment (13,989)	**1.6**		
Purchased		$290	$195
Comparable benefits		N/A	N/A

Table 3-18. Results of Cognitive or Psychological Services Among Consumers Who Received Those Services

Services (weighted n)	Services received Mean	Median	Percent
Counseling (257,237)	**1.6**	**1.0**	**29.8**
Change in vocational goal			17.0
Enrollment in vocational training			21.5
Enrollment in educational program			23.3
Supported employment			5.1
Job placement			33.0
Exited with employment outcome			34.7
Exited without employment outcome			7.5
Exited other			0.2
Other			43.6
Psychological/psychiatric treatment (52,595)	**1.8**	**1.0**	**6.1**
Dropped out of VR services			6.5
Job placement			14.0
Interruption of VR services			9.6
Work adjustment			8.4
Exited with employment outcome			13.4
Exited without employment outcome			4.0
Other			51.3
Substance abuse treatment (13,989)	**1.3**	**1.0**	**1.6**
Dropped out of VR services			9.4
Interruption of VR services			11.1
Job placement			23.1
Exited with employment outcome			25.3
Exited without employment outcome			5.2
Other			43.5

Multiple responses were possible.

Medical or Function Services

Fifteen percent of consumers received medical services, which the agency purchased in most cases (77 percent of such services); 18 percent also utilized comparable benefits (Table 3-19).[26] Agency-purchased medical services averaged $2,306 (median $1,010), while those arranged through comparable benefits averaged $4,529 (median $2,229) (Table 3-20[27]). On average, medical services extended over 168 days (median 21 days). Actions resulting from these services included correction or maintenance of a medical condition (52 and 55 percent, respectively) and specific VR services (56 percent) (Table 3-21)[28]. Fewer than 2 percent of consumers received interpreter services, which the agency typically purchased (85 percent) at an average cost of $1,673 (median $127), although in some instances (18 percent) agency staff provided these services.

Table 3-19. Percentage of Consumers Receiving Medical or Physical Function Services, by Type of Service, Delivery Arrangements,* and Duration

Services (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Medical services (128,934)	**14.9**	**168.3**	**21.0**
Agency provided	1.4		
Purchased	77.0		
Comparable benefits	17.8		
Interpreter services (13,991)	**1.6**	**166.3**	**34.0**
Agency provided	17.9		
Purchased	84.8		
Comparable benefits	3.4		
Speech/communication therapy (4,974)	**0.6**		
Blind reader services* (2,586)	**0.3**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

BEST COPY AVAILABLE

Table 3-20. Costs of Purchased Services and Comparable Benefits for Medical or Physical Function Treatment Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Medical services (134,558)	**14.9**		
Purchased		$2,306	$1,010
Comparable benefits		$4,529	$2,229
Interpreter services (13,991)	**1.6**		
Purchased		$1,673	$127
Comparable benefits		N/A	N/A

Table 3-21. Results of Medical or Physical Function Services Among Consumers Who Received Those Services

Services (weighted n)	Services received		
	Mean	Median	Percent
Medical services (128,934)	**3.8**	**2.0**	**14.9**
Correction of condition			51.6
Maintenance of condition			55.2
Recommended VR services			55.6
Recommended extended evaluation			4.2
Interruption of VR services			6.1
Change in vocational goal			5.9
Exited with employment outcome			11.7
Exited without employment outcome			1.6
Exited other			0.5
Other			27.1
Interpreter services* (13,991)			

Multiple responses were possible.

* No results were listed for this service.

Mobility-Related Services

Services associated with consumer mobility (Table 3-22)[29] included AT devices (21 percent of consumers) or services (2 percent), independent living services (3 percent of consumers), physical therapy (3 percent), personal assistance services (2 percent), orientation/mobility training, and driver training (fewer than 2 percent in each). VR generally purchased these services for consumers, with the percentage of services purchased ranging from 96 percent for assistive devices to 69 percent for physical therapy. Otherwise, VR staff arranged such services through comparable benefits, with the exception of independent living services; for about one-third of these services agency staff provided the service directly. The cost of purchased AT devices averaged $1,469; those arranged through comparable benefits averaged $2,048 (Table 3-23)[30]. Independent living services averaged $735; when purchased, physical therapy cost $773; AT services, $860; and personal assistance services, $1,925. As noted previously, very few consumers received orientation/mobility therapy or driver training services; the cost of these services averaged $1,164 and $563, respectively.

Receipt of AT devices resulted in consumers' initiation of training services (29 percent); one-fifth of consumers receiving this service exited with an employment outcome (Table 3-24).[31] For other services, resulting actions included achievement of an employment outcome (28 percent of persons receiving independent living services and 13 percent of persons receiving personal assistance services), job placement, and obtaining a driver's license.

Table 3-22. Percentage of Consumers Receiving Mobility-Related Services, by Type of Service, Delivery Arrangements,* and Duration

Service (weighted n)	% of consumers receiving service	Duration (in days)	
		Mean	Median
Assistive technology devices (178,808)	**20.7**	**42.9**	**3.0**
Agency provided	1.1		
Purchased	95.8		
Comparable benefits	10.1		
Independent living services (27,655)	**3.2**	**129.2**	**93.0**
Agency provided	29.2		
Purchased	71.5		
Comparable benefits	8.0		
Physical therapy (24,266)	**2.8**	**103.5**	**47.0**
Agency provided	5.7		
Purchased	68.9		
Comparable benefits	17.3		
Assistive technology services (19,684)	**2.3**	**58.9**	**31.0**
Agency provided	13.9		
Purchased	87.5		
Comparable benefits	4.3		
Personal assistance services (17,621)	**2.0**	**323.5**	**39.0**
Agency provided	3.1		
Purchased	88.2		
Comparable benefits	1.8		
Orientation/mobility therapy (10,682)	**1.2**	**142.4**	**89.0**
Agency provided	27.7		
Purchased	80.1		
Comparable benefits	5.8		
Driver training/licensing (10,533)	**1.2**	**103.1**	**47.0**
Agency provided	4.3		
Purchased	93.0		
Comparable benefits	3.7		

Table 3-23. Costs of Purchased Services and Comparable Benefits for Mobility-Related Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Assistive technology devices (178,808)	**20.7**		
Purchased		$1,469	$573
Comparable benefits		$2,048	$852
Independent living services (27,655)	**3.2**		
Purchased		$735	$336
Comparable benefits		N/A	N/A
Physical therapy (24,266)	**2.8**		
Purchased		$773	$466
Comparable benefits		N/A	N/A
Assistive technology services (19,684)	**2.3**		
Purchased		$860	$263
Comparable benefits		N/A	N/A
Personal assistance services (17,621)	**2.0**		
Purchased		$1,925	$300
Comparable benefits		N/A	N/A
Orientation/mobility therapy (10,682)	**1.2**		
Purchased		$1,164	$673
Comparable benefits		N/A	N/A
Driver training/licensing (10,533)	**1.2**		
Purchased		$563	$379
Comparable benefits		N/A	N/A

Table 3-24. Results of Mobility-Related Services Among Consumers Who Received Those Services

Service (weighted n)	Services received Mean	Median	Percent
Assistive technology devices (178,808)	**2.1**	**1.0**	**20.7**
Initiation of training services			29.2
Exited with employment outcome			20.2
Exited without employment outcome			1.6
Exited other			0.6
Other			49.9
Independent living services (27,655)	**1.9**	**1.0**	**3.2**
Exited with employment outcome			27.7
Exited without employment outcome			1.1
Exited other			0.5
Other			78.5
Physical therapy (24,666)	**1.7**	**1.0**	**2.8**
Referral for AT assessment/services			9.8
Work adjustment			6.8
Exited with employment outcome			6.1
Exited without employment outcome			4.0
Other			55.4
Assistive technology services (19,684)	**1.5**	**1.0**	**2.3**
Job placement			15.9
Movement in active status			26.6
Other			63.6
Personal assistance services (17,621)	**2.5**	**1.0**	**2.0**
Job placement			11.6
Supported employment			3.6
Exited with employment outcome			13.1
Exited without employment outcome			2.8
Exited other			0.3
Other			62.6
Orientation/mobility therapy (10,682)	**1.7**	**1.0**	**1.2**
Change in vocational goal			1.5
Job placement			6.3
Exited with employment outcome			19.2
Other			75.8
Driver training/licensing (10,533)	**1.4**	**1.0**	**1.2**
Completed training			71.8
Obtained driver's license			63.2
Exited with employment outcome			15.0
Other			41.0

Multiple responses were possible.

Postsecondary and Other Education Services

As noted earlier, one-third of consumers participated in postsecondary education as part of their VR services. Of those consumers, 16 percent attended business school or other vocational training program (Table 3-25),[32] 12 percent enrolled in a two-year community college, and 10 percent attended a four-year college or university. For nearly all consumers enrolling in postsecondary education, the agency purchased the services: 94 percent for business/vocational training, 97 percent for community college, and 99 percent for college/university. Additionally, comparable benefits were available for some consumers: 14 percent, 28 percent, and 34 percent, respectively. As shown in Table 3-26[33], when the VR agency purchased business or vocational training, the average cost was $2,755; the average cost of this service when obtained through comparable benefits was $3,199. Total average cost per service (purchased and comparable benefits) was $3,367. Average cost of two-year community college was $1,570 through purchase and $3,325 through comparable benefits, with average cost across the two at $2,231. For four-year college or university the purchase cost averaged $4,771, with the comparable benefits cost averaging $6,970, and a total average of $6,796. Finally, for persons who received tutoring, the VR agency purchased the service at an average cost of $482.

The most frequent action resulting from postsecondary enrollment was continuing the following year: 38 percent in the case of business/vocational school, 66 percent for community college, and 77 percent for college/university students (Table 3-27)[34]. Because of the logistics of reporting these services (i.e., data collectors completed one service form per year for the duration of enrollment), the data also indicated completion of a degree/certificate for some consumers. One-quarter of students enrolled in business/vocational school completed a degree. Comparable percentages for community college and college/university were 11 and 21 percent, respectively. Twelve percent of business/vocational students dropped out of school, as did 19 percent of community college students and 13 percent of those attending college/university.

As shown in Tables 3-28 and 3-29[35], very small percentages of consumers received other education services, which included, for example, tutoring, GED preparation, elementary/secondary education, and other services. Small sample sizes for these services preclude discussion of details regarding their delivery and effects.

Table 3-25. Percentage of Consumers Receiving Postsecondary Education Services, by Type of Service, Delivery Arrangements,* and Duration

Service (weighted n)	% of consumers receiving service	Duration (in days)	
		Mean	Median
Business/vocational training (134,558)	**15.6**	**221.6**	**151.0**
Agency provided	4.3		
Purchased	93.8		
Comparable benefits	14.3		
Two-year community college (103,688)	**12.0**	**340.0**	**238.0**
Agency provided	0.0		
Purchased	97.0		
Comparable benefits	27.9		
Four-year college/university (85,251)	**9.9**	**508.7**	**389.0**
Agency provided	0.0		
Purchased	99.2		
Comparable benefits	33.6		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-26. Costs of Purchased Services and Comparable Benefits for Postsecondary Education and Other Education Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Business/vocational training (134,558)	**15.6**		
Purchased		$2,755	$1,140
Comparable benefits		$3,199	$2,184
Total (purchased + comparable benefits)		**$3,367**	**$1,352**
Two-year community college (103,688)	**12.0**		
Purchased		$1,570	$966
Comparable benefits		$3,325	$2,101
Total (purchased + comparable benefits)		**$2,231**	**$1,159**
Four-year college/university (85,251)	**9.9**		
Purchased		$4,771	$3,326
Comparable benefits		$6,970	$4,094
Total (purchased + comparable benefits)		**$6,796**	**$4,144**
Tutoring (10,617)	**1.2**		
Purchased		$482	$254
Comparable benefits		N/A	N/A

Table 3-27. Results of Postsecondary Education Services Among Consumers Who Received Those Services

Service results (weighted n)	Services received Mean	 Median	 Percent
Business/vocational training (134,558)	**2.3**	**1.0**	**15.6**
Continued following year			37.6
Completed degree			23.8
Dropped out			11.9
Job placement			21.1
Exited with employment outcome			16.5
Exited without employment outcome			4.5
Exited other			0.1
Other			46.9
Two-year community college (103,668)	**2.9**	**2.0**	**12.0**
Continued following year			66.4
Completed degree			11.3
Dropped out			18.8
Job placement			11.2
Exited with employment outcome			7.2
Exited without employment outcome			5.1
Other			42.2
Four-year college/university (85,251)	**4.0**	**3.0**	**9.9**
Continued following year			76.8
Completed degree			20.6
Dropped out			12.8
Job placement			11.0
Exited with employment outcome			8.3
Exited without employment outcome			4.0
Exited other			0.1
Other			33.2

Multiple responses were possible.

Table 3-28. Percentage of Consumers Receiving Other Education Services, by Type of Service, Delivery Arrangements,* and Duration

Education or training services (weighted n)	% of consumers receiving service	Duration (in days)	
		Mean	Median
Tutoring (10,617)	**1.2**	**179.5**	**100.0**
Agency provided	0.0		
Purchased	90.9		
Comparable benefits	10.2		
GED preparation* (6,410)	**0.7**		
Elementary/secondary education* (4,781)	**0.6**		
Literacy instruction* (2,068)	**0.2**		
Instruction in reading Braille* (1,430)	**0.2**		
Instruction in English as a second language* (1,066)	**0.1**		
Instruction in lip reading* (723)	**0.1**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-29. Results of Other Education Services Among Consumers Who Received Those Services

Service results (weighted n)	Services received		
	Mean	Median	Percent
Tutoring (10,617)	**1.8**	**1.0**	**1.2**
Successfully completed work in topic area			61.2
Continued in program			50.7
Completed program			36.0
Entered further education			19.9
Exited with employment outcome			16.3
Exited without employment outcome			0.0
Exited other			0.0
Other			41.3

Multiple responses were possible.

Miscellaneous Support Services

As noted earlier (Chapter 2, Table 2-2)[36], nearly 40 percent of consumers received some form of support services as part of their VR experience, including transportation (27 percent), tools/uniforms/equipment/stock (12 percent), maintenance (11 percent) or vehicle maintenance (2.4 percent) (Table 3-30)[37]. VR purchased these services in most cases, although the agency provided transportation services directly to about one-quarter of consumers who received this service. Purchased costs for transportation averaged $610; the average for transportation arranged through comparable benefits was $2,104 (Table 3-31)[38]. For other support services, average purchase costs were $826 for tools and equipment, $400 for maintenance, and $1,379 for vehicle maintenance or repair. Very few consumers received post-employment services, services to other family members, or housing assistance. Consumers most often used transportation services to travel to education or training institutions (62 percent), the location of assessment services (34 percent), or job search or placement services (31 percent) (Table 3-32)[39]. Data collection did not include listing of actions resulting from receipt of these ancillary services.

Table 3-30. Miscellaneous Support Services, by Type of Service, Delivery Arrangements,* and Duration

Service (weighted n)	% of consumers receiving service	Duration (in days) Mean	Duration (in days) Median
Transportation (230,928)	**26.7**	**221.0**	**113.0**
Agency provided	27.0		
Purchased	82.1		
Comparable benefits	2.1		
Tools/uniforms/equipment/stock (105,540)	**12.2**	**97.4**	**17.0**
Agency provided	0.0		
Purchased	98.2		
Comparable benefits	2.6		
Maintenance (90,769)	**10.5**	**137.5**	**62.0**
Agency provided	0.0		
Purchased	100.0		
Comparable benefits	0.0		
Vehicle maintenance/repair/ insurance (20,721)	**2.4**	**109.5**	**43.0**
Agency provided	0.0		
Purchased	99.1		
Comparable benefits	7.2		
Post-employment services* (6,432)	**0.7**		
Services to other family members* (7,216)	**0.8**		
Housing assistance* (8,393)	**1.0**		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

Table 3-31. Costs of Purchased Services and Comparable Benefits for Miscellaneous Support Services

Services (weighted n)	% receiving service	Costs	
		Mean	Median
Transportation (230,928)	**26.7**		
Purchased		$610	$240
Comparable benefits		$2,104	$350
Tools/uniforms/equipment/stock (105,540)	**12.2**		
Purchased		$826	$231
Comparable benefits		N/A	N/A
Maintenance (90,769)	**10.5**		
Purchased		$400	$143
Comparable benefits		N/A	N/A
Vehicle maintenance/repair/insurance (20,721)	**2.4**		
Purchased		$1,379	$485
Comparable benefits		N/A	N/A

Table 3-32. Results of Miscellaneous Support Services Among Consumers Who Received Those Services

Service (weighted n)	Services received		
	Mean	Median	Percent
Transportation (purpose) (230,928)	**3.2**	**2.0**	**26.7**
Diagnostic or evaluation services			33.9
Physical or mental restoration services			6.9
Education or training services			62.1
Job search or placement services			31.3
Counselor meetings			22.9
Maintenance			8.2
To maintain employment			12.4
Other			9.0
Tools/uniforms/equipment/stock* (105,650)	**2.2**	**1.0**	**12.2**
Maintenance* (90,769)	**2.8**	**1.0**	**10.5**
Vehicle maintenance/repair* (20,721)	**2.5**	**2.0**	**2.4**

Multiple responses were possible.

* No results were listed for this service.

Case Management

Case management services included activities associated with eligibility determination, IPE development, and IPE amendment. (Counselors may also provide other counseling and guidance services over the course of a consumer's VR services; these activities are included in cognitive/psychological services.) As shown in Table 3-33[40], consumers' case files documented eligibility determination and IPE development services for 92 percent of consumers who received VR services. Twenty-four percent of consumers' case files indicated amendment of the IPE over the course of services.[4] The period of eligibility determination averaged 64 days (median of 9.0), and the IPE development period averaged 68 days (median 1.0). The 24 percent of consumers who amended the IPE during services averaged 3.4 (median 2.0) such amendments (Table 3-34).

Table 3-33. Percentage of Consumers Receiving Case Management Services, by Type of Service, Delivery Arrangements,* and Duration

Service (weighted n)	% of consumers receiving service	Duration (in days)	
		Mean	Median
Counseling for eligibility determination (796,268)	**92.1**	**64.3**	**9.0**
Agency provided	100.0		
Purchased	0.0		
Comparable benefits	0.0		
IPE development (797,106)	**92.2**	**67.9**	**1.0**
Agency provided	100.0		
Purchased	0.0		
Comparable benefits	0.0		
IPE amendment (205,318)	**23.8**	**N/A**	**N/A**
Agency provided	100.0		
Purchased	0.0		
Comparable benefits	0.0		

* Most services could be provided through more than one mechanism (e.g., vocational evaluation services were sometimes purchased and sometimes provided directly by VR agency staff). For some services the number of consumers receiving the service precluded reporting of details.

---

[4] In all, 18 percent of consumers changed their vocational goal during services; other reasons for amendments included change of services or other adjustments to the IPE.

Table 3-34. Results of Case Management Services Among VR Consumers Who Received Those Services

	Services received		
Service results (weighted n)	**Mean**	**Median**	**Percent**
Counseling for eligibility determination (796,268)	**N/A**	**N/A**	**92.1**
Accepted for services			98.4
Placed in extended evaluation			5.0
Determined ineligible			0.2
Placed on waiting list			0.9
Declined services			0.3
Other			3.5
IPE development (797,106)	**N/A**	**N/A**	**92.2**
IPE completed			100.0
IPE amendment (205,318)	**3.4**	**2.0**	**23.8**
IPE amendment completed			100.0

Multiple responses were possible.

Summary

Over 80 percent of VR consumers received at least one assessment service in connection with their VR participation. Over half of all consumers received medical evaluation services; 30 percent received psychological or psychiatric evaluations, 28 percent received a vocational assessment, and 13 percent received a vision assessment. Relatively fewer received other forms of assessments. Eighty-six percent of consumers received at least one service other than assessment or case management. The most frequently received of these services were counseling (30 percent), transportation (27 percent), AT devices (21 percent), and business or vocational training (16 percent). Finally, 95 percent of consumers' case files documented activities associated with eligibility determination and IPE development and amendment.

Chapter 4

VR Services and Primary Disability

As noted previously, persons with disabilities who apply for VR services may receive a variety of assessments to support a determination of eligibility. Following acceptance for services, VR consumers work with their VR counselor to select a vocational goal and develop a plan of services whose intent is to enable the consumer to achieve that goal. To support this planning process, consumers may undergo further assessments (e.g., vocational evaluation to help the consumer select a vocational goal and a plan of services) to clarify service needs.[1] Consumer and counselor, with the help of others as appropriate, plan the services, establish a time table for receipt of services, articulate intermediate objectives to keep the process moving toward the vocational goal, and select providers of services. While the process is more or less the same for all consumers, the service plans vary considerably, given the statutory requirement that each consumer have an *individualized* plan that meets his or her specific goals and needs.

Table 4-1. Primary Disability of VR Consumers

Primary disability	Weighted n	Percent
Orthopedic impairment, including amputation	240,405	27.8
Mental illness	174,175	20.2
Nonorthopedic physical impairment	98,932	11.5
Mental retardation	78,523	9.1
Hearing impairment	75,117	8.7
Learning disability	66,951	7.8
Vision impairment	55,397	6.4
Substance abuse	49,538	5.7
Traumatic brain injury	15,867	1.8
All other conditions	8,973	1.0
Total	863,878	100.0

The most important factor that affects the specific services individuals receive from VR is their primary disability. Earlier chapters of this report provide details on patterns of service delivery overall. Given the importance of primary disability to considerations of vocational goal and services, this chapter describes the service patterns among major disability types. To establish a context for these analyses, data in Table 4-1[41] report the distribution of VR consumers by disability type. As shown, persons with orthopedic impairments, including amputation, constitute the largest single category of disability type;

---

[1] Overall, 62 percent of assessment services that the VR program delivers occur prior to consumers' acceptance for VR services; 39 percent occur following consumers' acceptance for services.

28 percent of consumers have this type of impairment as the primary disability. Twenty percent of consumers have mental illness as a primary disability, followed by nonorthopedic physical impairments (12 percent), mental retardation (9 percent), hearing impairments (9 percent), learning disability (8 percent), vision impairments (6 percent), substance abuse (6 percent), and traumatic brain injury (TBI) (slightly less than 2 percent). In this chapter, we present findings on the service patterns of VR consumers with each of these primary disabilities. For each group of consumers, we record all services that at least 10 percent of consumers in that group received.

Service Patterns Among Persons With Orthopedic Impairments

The services that persons with a primary disability of orthopedic impairments, including amputation, most frequently received were medical evaluation (65 percent of all persons with these disabilities) and vocational evaluation (35 percent) (Table 4-2)[42]. They also often received psychological/psychiatric evaluation (21 percent), counseling services (31 percent), and transportation (27 percent). One-fifth received medical services as well. These consumers often enrolled in various types of postsecondary programs: 19 percent enrolled in business/vocational training, 17 percent in community college, and 13 percent in four-year college or university. Additionally, these consumers received assistive devices (19 percent) and maintenance (12 percent). In terms of case management services, 28 percent amended their IPE at least once. Nearly all of their files documented counseling for eligibility determination and IPE development activities.

Table 4-2. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Orthopedic Impairments

	Consumers receiving service
Service (n=240,405)	**Percentage**
Medical evaluation	65.0
Vocational evaluation	34.5
Counseling	31.2
Transportation	26.9
Psychological/psychiatric evaluation	20.6
Medical services	20.3
Assistive technology devices	19.1
Business/vocational training	19.0
Two-year community college	17.0
Tools/uniforms/equipment/stock	14.3
Four-year college/university	12.5
Maintenance	12.3
Case management services	
Eligibility determination	93.5
IPE development	94.0
IPE amendment	27.9

Service Patterns Among Persons With Mental Illness

Persons with a primary disability of mental illness received relatively more services with greater frequency than did persons with orthopedic impairments (Table 4-3)[43]. Exclusive of case management services, more than 10 percent of these consumers received 16 different services, compared with 12 services among persons with orthopedic impairments. Services that persons with mental illness most often received included psychological or psychiatric evaluation (50 percent received this service), medical evaluation (45 percent), and vocational evaluation (32 percent). One-third received transportation services, 31 percent participated in counseling, and 18 percent received psychological or psychiatric treatment. In the area of postsecondary education, 21 percent of consumers with mental illness enrolled in business/vocational training, 13 percent in two-year community college, and 11 percent enrolled in four-year college or university. VR provided tools or equipment to 15 percent, maintenance to 13 percent, and job development and job placement services to 12 percent each. Eleven percent received medical services and supported employment, while 10 percent participated in work adjustment training. Nearly one-quarter amended their IPE at least once, and over 90 percent of these consumers' case files documented eligibility determination and IPE development activities.

Table 4-3. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Mental Illness

	Consumers receiving service
Service (n=174,175)	**Percentage**
Psychological/psychiatric evaluation	49.7
Medical evaluation	45.4
Transportation	33.3
Vocational evaluation	32.4
Counseling	31.1
Business/vocational training	20.6
Psychological/psychiatric treatment	18.1
Tools/uniforms/equipment/stock	14.6
Maintenance	13.2
Two-year community college	12.6
Job placement	11.8
Job development	11.5
Medical services	11.2
Supported employment	10.7
Four-year college/university	10.6
Work adjustment	10.1
Case management services	
Eligibility determination	91.8
IPE development	91.4
IPE amendment	23.6

VR Longitudinal Study, October 2001.

Service Patterns Among Persons With Nonorthopedic Physical Impairments

Consumers with physical disabilities most often received medical evaluation (61 percent) and medical services (34 percent) (Table 4-4)[44]. One-quarter received vocational evaluation, and 21 percent a psychological/psychiatric evaluation. Other frequent services were counseling (32 percent), transportation (23 percent), AT devices (12 percent), and tools/uniforms/equipment/stock (11 percent). They also enrolled in postsecondary education: 16 percent took business or vocational training, 14 percent enrolled in 4-year college or university, and 13 percent in a two-year community college. Nearly one-quarter amended their IPE at least once, and for most, the case files documented eligibility determination and IPE development activities (93 and 94 percent, respectively).

Table 4-4. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Nonorthopedic Physical Impairments

	Consumers receiving service
Service (n=98,932)	**Percentage**
Medical evaluation	60.5
Medical services	34.3
Counseling	32.0
Vocational evaluation	25.1
Transportation	23.2
Psychological/psychiatric evaluation	21.2
Business/vocational training	15.6
Four-year college/university	14.3
Two-year community college	12.7
Assistive technology devices	11.6
Tools/uniforms/equipment/stock	11.2
Case management services	
Eligibility determination	93.3
IPE development	93.5
IPE amendment	23.6

Service Patterns Among Persons With Mental Retardation

Consumers with mental retardation as a primary disability received relatively fewer services with the specified frequency than did consumers with other disabilities: at least 10 percent of these consumers received one or more of 10 different services, compared with 12 for persons with orthopedic impairments, 16 for persons with mental illness, and 11 for persons with nonorthopedic physical disabilities (Table 4-5)[45]. Again, however, the most frequently received service was medical evaluation (42 percent), followed by psychological/psychiatric evaluation (41 percent), and vocational evaluation (39 percent). Thirty-two percent entered supported employment, by far the largest percentage among the various disability groups. One-quarter received counseling and work adjustment training. Less than one-fifth received transportation (18 percent), job development (16 percent), educational status evaluation (14 percent), or job placement services (12 percent). One-quarter amended their IPE at least once, and over 90 percent had case documentation of other case management services.

Table 4-5. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Mental Retardation

	Consumers receiving service
Service (n=78,523)	**Percentage**
Medical evaluation	41.6
Psychological/psychiatric evaluation	41.3
Vocational evaluation	38.7
Supported employment	31.9
Counseling	25.0
Work adjustment	24.1
Transportation	17.5
Job development	15.9
Educational status evaluation	13.9
Job placement	11.6
Case management services	
Eligibility determination	91.6
IPE development	93.1
IPE amendment	25.2

In addition to receiving relatively fewer services overall than did consumers with some other types of disabilities, fewer persons with mental retardation received some of the specific services and more of others. For example, 71 percent of consumers with vision impairments and 66 percent of consumers with TBI received a medical evaluation, compared with 42 percent of these consumers. Conversely, somewhat more consumers with mental retardation received vocational evaluation services than consumers with some other disabilities (e.g., vision or hearing impairments) and considerably more received supported employment (32 percent versus 11 percent of persons with mental illness – no other disability group entered supported employment with any frequency).

Service Patterns Among Persons With Hearing Impairments

Table 4-6. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Hearing Impairments

Service (n=75,117)	Consumers receiving service Percentage
Hearing assessment	74.4
Assistive technology devices	71.0
Medical evaluation	49.4
Counseling	26.1
Transportation	20.5
Vision assessment	19.6
Interpreter services	15.9
Job placement	15.0
Vocational evaluation	14.0
Psychological/psychiatric evaluation	13.7
Case management services	
Eligibility determination	93.1
IPE development	94.6
IPE amendment	21.2

As shown in Table 4-6[46], a very high percentage of consumers with hearing impairments received a hearing assessment (74 percent) and an assistive device (71 percent), generally a hearing aid. Almost half received a medical evaluation; one-fifth received a vision assessment; 14 percent received a psychological/psychiatric assessment; and 14 percent, a vocational evaluation. (Thus, five of the most frequent 10 services were assessments.) Other services included counseling (26 percent), transportation (21 percent), interpreter services (16 percent), and job placement services (15 percent). As did persons with mental retardation, consumers with hearing impairments received relatively fewer services than did consumers in other groups; 10 of the services they received met the 10 percent criterion. Twenty-one percent of consumers with hearing impairments amended their IPE, and nearly all case files documented eligibility determination activities (93 percent) and IPE development (95 percent).

Service Patterns Among Persons With Learning Disabilities

The three most frequent services that persons with learning disabilities received (Table 4-7)[47] were psychological/psychiatric evaluation (48 percent), medical evaluation (40 percent), and vocational evaluation (35 percent). They also often received educational status evaluation (16 percent). Of the other 14 most frequent services that these consumers received were counseling (27 percent), transportation (23 percent), job placement (13 percent), maintenance (12 percent), tools and uniforms (11 percent) job development (11 percent), and work adjustment training (10 percent). In terms of education, 16 percent attended business/vocational school; 15 percent attended community college; and 13 percent, 4-year college or university. Over one-quarter amended their IPE at least once, and over 90 percent of their case files documented other case management-related services.

Table 4-7. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Learning Disability

	Consumers receiving service
Service (n=66,951)	**Percentage**
Psychological/psychiatric evaluation	48.4
Medical evaluation	39.6
Vocational evaluation	35.3
Counseling	26.7
Transportation	22.8
Educational status evaluation	16.4
Business/vocational training	16.3
Two-year community college	14.9
Four-year college/university	12.7
Job placement	12.7
Maintenance	12.3
Tools/uniforms/equipment/stock	11.0
Job development	10.7
Work adjustment	10.4
Case management services	
Eligibility determination	92.2
IPE development	91.1
IPE amendment	26.5

Service Patterns Among Persons With Vision Impairments

Table 4-8. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Vision Impairments

Service (n=55,397)	Consumers receiving service Percentage
Vision assessment	82.6
Assistive technology devices	74.6
Medical evaluation	71.0
Independent living services	40.5
Transportation	30.7
Counseling	29.3
Orientation/mobility therapy	16.3
Vocational evaluation	14.3
Medical services	10.5
Case management services	
Eligibility determination	84.9
IPE development	86.4
IPE amendment	10.6

Like consumers with hearing impairments, disability-related assessment was the most frequent service that consumers with vision impairments received (83 percent), and three-fourths received an AT device, typically a low-vision aid (Table 4-8)[48]. Seventy-one percent received a medical evaluation, and 14 percent received a vocational evaluation. Other services that consumers with vision impairments received included independent living services (41 percent), transportation (31 percent), counseling (29 percent), orientation/mobility therapy (16 percent), and medical services (11 percent). These consumers did not frequently enroll in postsecondary or other education services, and they received relatively fewer services at or above the 10 percent criterion than did consumers with other disabilities (9 different services). Consumers with a vision impairment as a primary disability rarely amended their IPE—only 11 percent amended the IPE at least once, and relatively fewer of their case files documented eligibility determination activities (85 percent) or IPE development services (86 percent).

Service Patterns Among Persons With Substance Abuse Disabilities

Consumers with a primary disability of substance abuse received medical (45 percent) or psychological/psychiatric evaluation (36 percent) more frequently than other services (Table 4-9)[49], as well as vocational evaluation (22 percent). Other frequent services included counseling (32 percent), transportation (32 percent), tools and equipment (22 percent), substance abuse treatment (17 percent), maintenance (14 percent), and medical services (13 percent). They also enrolled in business/vocational training (16 percent of consumers in this group) and community college (15 percent) relatively often, though not in four-year college or university. They relatively rarely amended their IPE (19 percent). Approximately 90 percent of their files documented receipt of services associated with eligibility determination and IPE development.

Table 4-9. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Substance Abuse

	Consumers receiving service
Service (n=49,538)	**Percentage**
Medical evaluation	44.9
Psychological/psychiatric evaluation	35.7
Counseling	32.1
Transportation	31.6
Vocational evaluation	22.1
Tools/uniforms/equipment/stock	21.5
Substance abuse treatment	16.5
Business/vocational training	15.7
Two-year community college	15.0
Maintenance	13.8
Medical services	13.0
Case management services	
Eligibility determination	91.4
IPE development	90.2
IPE amendment	18.5

Service Patterns Among Persons With Traumatic Brain Injuries

Table 4-10. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Traumatic Brain Injury

Service (n=15,868)	Consumers receiving service Percentage
Medical evaluation	66.0
Vocational evaluation	44.1
Psychological/psychiatric evaluation	38.0
Neuropsychological evaluation	31.9
Counseling	30.5
Transportation	24.6
Medical services	18.2
Assistive technology devices	17.4
Business/vocational training	15.2
Job placement	13.4
Supported employment	12.8
Educational status evaluation	12.6
Physical therapy	12.6
Psychological/psychiatric treatment	12.3
Job development	10.6
Case management services	
Eligibility determination	94.6
IPE development	88.7
IPE amendment	22.9

Very few consumers (2 percent, or around 16,000 persons) had a primary disability of TBI. Consumers with this disability received 15 different services that met the criterion that at least 10 percent of consumers in the group had received the service (Table 4-10)[50]. The four most frequent of these services were assessments: 66 percent received a medical evaluation; 44 percent, a vocational evaluation; 38 percent, a psychological/psychiatric evaluation; and 32 percent, a neuropsychological evaluation. They much less frequently received an assessment of educational status (13 percent). Other services they received included counseling (31 percent), transportation (25 percent), medical services (18 percent), and such employment-development services as job placement, supported employment (13 percent each), and job development (11 percent). They sometimes enrolled in business/vocational programs (15 percent), but did not often enter two-year or four-year colleges. Fewer than one-quarter amended their IPE, and documentation of eligibility determination activities more often appeared in their case files than did indication of IPE development services (95 versus 89 percent).

Service Patterns Among Persons With Other Conditions

Table 4-11[51] reports that consumers with other conditions most often received medical evaluation services (47 percent), transportation (46 percent), or psychological/psychiatric evaluation (42 percent). They also frequently received counseling services (28 percent); tools, uniforms, and equipment (21 percent); or enrolled in two-year community college (21 percent). Other services that consumers in this group received included vocational evaluation, maintenance, job search training, supported employment, and vision assessment. They did not often amend their IPE (18 percent amended their IPE at least once). Their files documented eligibility determination activities more frequently than activities associated with IPE development (90 versus 84 percent).

Table 4-11. VR Services Most Frequently Obtained by Consumers with a Primary Disability of Other Conditions

Service (n=8,973)	Consumers receiving service Percentage
Medical evaluation	47.0
Transportation	45.7
Psychological/psychiatric evaluation	41.5
Counseling	27.7
Two-year community college	21.4
Tools/uniforms/equipment/stock	21.1
Vocational evaluation	16.0
Maintenance	13.4
Job search training	13.1
Supported employment	11.7
Vision assessment	10.5
Case management services	
Eligibility determination	90.1
IPE development	83.9

Relationships Between Services and Disability Type

In the previous sections of this chapter, we reported the percentages of consumers who received each type of service within groups defined by disability type. Those findings demonstrated that the patterns of services differ noticeably across those groups; these differences are an indication of the extent to which services are customized to individual needs. To understand this relationship more completely, we used a multivariate statistical technique called discriminant analysis. The purpose of our discriminant analyses was to study statistically significant differences among service patterns for groups of consumers by disability type; it allows us to separate the disability groups on the basis of services they received and to determine how well these service patterns discriminate among the groups. To accomplish this, discriminant analysis creates a set of variables, called canonical variables, made up of weighted combinations of the characteristics of interest. In the text below we refer to the canonical variables as "subsets of services" because even though each variable contains information on all services, each gives the largest weights to a small subset of services, and those are the ones on which the disability types differ. The meaning of these canonical variables is open to interpretation, similar to factor analysis.

Our interpretation of these findings is based on our understanding of the nature of the services, of the disabilities, and of the VR process, and it is founded upon our conceptual framework in which we hypothesize that services are provided based on the needs and characteristics of individual consumers. Each group (in this case, based on disability type) has a mean score on each canonical variable, and the set of means indicates which groups are most strongly differentiated by that canonical variable. In other words, if one group (say, persons with orthopedic disabilities) has the highest mean and another group (say, persons with learning disabilities) has the lowest mean, we can conclude that these groups are the farthest apart on the set of services represented by the canonical variable. In conducting these analyses, we created canonical variables that differentiate among individuals with different types of disabilities using weighted combinations of services. While certain disability types may be very different on one variable, they can be very similar on another. Our analysis revealed seven significant canonical variables, described below, which means that there are seven ways of combining the services that will show differences among the groups. The first canonical variable has the greatest explanatory power (separates the groups the most), followed by the second, the third, etc. Appendix B contains tables listing the weights for each service on each canonical variable and the means of each group on those same canonical variables. Exhibit 4-1[52] is a graphical representation of these findings.

On the first subset of services (i.e., first canonical variable), individuals with vision and hearing impairments had very similar patterns of service and were most different from individuals with mental retardation, mental illness, learning disabilities, substance abuse, and the category "all other conditions." The services on which they differed the most were independent living services, assistive technology devices, and orientation/mobility therapy (which were received more often by those with vision and hearing impairments) and tutoring and driver training and licensing (which were received more often by those with mental retardation, mental illness, learning disabilities, and substance abuse.

The second subset of services discriminated between individuals with mental retardation and individuals with hearing impairments on a different combination of services. Services associated more closely with mental retardation than with hearing impairments included supported employment, orientation/mobility therapy, and independent living services. Services associated more closely with hearing impairments included interpreter services and physical therapy.

On the third subset of services, individuals with hearing impairments had different services patterns from individuals with vision impairments, orthopedic disabilities, and substance abuse. Services associated with vision impairments, orthopedic disabilities, and substance abuse included orientation/mobility therapy and independent living services. The primary service associated with hearing impairments within this subset was interpreter services.

On the fourth subset of services, individuals with substance abuse and mental illness had similar service patterns, and these service patterns differed from those of individuals with mental retardation and orthopedic disabilities. Individuals with substance abuse and mental illness received substance abuse treatment and psychological/psychiatric treatment more

Exhibit 4-1. Relationship Between Service Patterns and Type of Disability

Disability Type	Services		Services	Disability Type
Vision Impairments Hearing Impairments	Independent living services Assistive technology devices Orientation/ mobility therapy	⟺	Tutoring Driver training and licensing	Mental Retardation Mental Illness Learning Disabilities Substance Abuse All Other Conditions
Hearing Impairments	Interpreter services Physical therapy	⟺	Supported employment Orientation/mobility therapy Independent living services	Mental Retardation
Hearing Impairments	Interpreter services	⟺	Orientation/mobility therapy Independent living services	Vision Impairments Orthopedic Disabilities Substance Abuse
Substance Abuse Mental Illness	Substance abuse treatment Psychological/ psychiatric treatment	⟺	Physical therapy Driver training and licensing Tutoring	Mental Retardation Orthopedic Disabilities
Substance Abuse	Substance abuse treatment	⟺	Psychological/ psychiatric treatment Driver training and licensing Job placement	Mental Illness Traumatic Brain Injury
Nonorthopedic Physical Disabilities	Orientation/mobility therapy Independent living services Job search training Tutoring Medical services	⟺	Physical therapy	Traumatic Brain Injury
Traumatic Brain Injury Nonorthopedic Physical Disabilities Mental Retardation	Substance abuse treatment Supported employment	⟺	Tutoring Job placement On-the-job training/job trial Independent living services	Learning Disabilities

BEST COPY AVAILABLE

often, while individuals with mental retardation and orthopedic disabilities received physical therapy, driver training and licensing, and tutoring more often.

The fifth subset of services differentiated individuals with mental illness and TBI from individuals with substance abuse. Individuals with substance abuse received substance abuse treatment more often, while individuals with mental illness and TBI received psychological/psychiatric treatment, driver training and licensing, and job placement more often.

On the sixth subset of services, individuals with TBI differed from individuals with nonorthopedic physical disabilities. The primary service associated with TBI was physical therapy, while services associated with nonorthopedic physical disabilities included orientation/mobility therapy, independent living services, job search training, tutoring, and medical services.

The seventh subset of services discriminated individuals with TBI, nonorthopedic physical disabilities, and mental retardation from individuals with learning disabilities. The services on which they differed the most were substance abuse treatment and supported employment (which were received more often by individuals with TBI, nonorthopedic physical disabilities, and mental retardation) and tutoring, job placement, on-the-job training/job trial, and independent living services (which were received more often by individuals with learning disabilities).

No single canonical variable (subset of services) is sufficient to discriminate among all types of disabilities. For example, individuals with substance abuse and mental illness were similar on the fourth canonical variable but very different on the fifth canonical variable.

In general, this analysis does reveal that service patterns differ greatly by disability type and that the differences are complex in nature, requiring numerous combinations of services to describe the ways in which they differ. Further, within disability types there is a great deal of variation among services received, as demonstrated in the tables earlier in this chapter. Given the diverse demographic and educational background of VR consumers, along with the possibility of secondary disabilities, these findings further support the hypothesis that services are individualized to consumer needs.

Summary

To examine patterns of services among persons according to primary disability, we analyzed the group of services that at least 10 percent of the subgroup received during his or her VR participation and conducted discriminate analysis to investigate further relationships between services and disability type. To facilitate consideration of these patterns, Table 4-12[53] reports service patterns for VR consumers overall.[2] As shown, of the 13 different services that at least 10 percent of VR consumers received, they most frequently received medical evaluation services (54 percent). This finding is attributable at least in part to the VR program's requirement to document presence of a disability as a condition of program eligibility, a requirement in place at the time of the study's data collection, although recent statutory changes have affected this requirement and may change the extent to which medical evaluation continues as the most frequent service that consumers receive. Other assessment services that VR applicants and consumers frequently receive are psychological/psychiatric evaluation (30 percent), the second most frequently received service, vocational evaluation (28 percent), and vision assessment (13 percent).

Table 4-12. VR Services Most Frequently Obtained by Consumers

	Consumers receiving service
Service (n=863,878))	**Percentage**
Medical evaluation	54.1
Psychological/psychiatric evaluation	30.4
Counseling	29.8
Vocational evaluation	28.3
Transportation	26.7
AT devices	20.7
Business/vocational training	15.6
Medical services	14.9
Vision assessment	12.5
Tools/uniforms/equipment/stock	12.2
Two-year community college	12.0
Job placement	10.6
Maintenance	10.5
Case management services	
Eligibility determination	92.1
IPE development	92.2
IPE amendment	23.8

Source: VR Longitudinal Study, October 2001.

---

[2] Preceding tables in this chapter have described service patterns by type of disability. This summary table describes services that all persons receiving services most frequently received.

In terms of services other than assessments, 30 percent of VR consumers received counseling services as a part of their VR program, and 15 percent received medical treatment. Sixteen percent enrolled in business/vocational programs, while 12 percent attended two-year community college. Consumers also often received a variety of support services, including transportation (27 percent), tools, uniforms, equipment, or stock necessary for the employment the consumer wished to enter (12 percent), and maintenance (11 percent). Eleven percent received job placement services. About one-quarter amended their IPE at least once during their receipt of VR services, and nearly all of consumers' case files documented activities associated with eligibility determination and IPE development.

One of the findings that our examination of service patterns by type of primary disability reveals is the variability in the number of different services that a substantial number of consumers received while participating in VR. Consumers with mental illness received more different services (16 in all met the 10 percent criterion) than did any other group, followed by consumers with TBI (15 different services) and those with learning disabilities (14 different services). Conversely, persons with vision impairments received the fewest different services overall, with nine. Consumers with hearing impairments received 10 different services, as did consumers with mental retardation. The implications of this finding may include the possibility that persons with a variety of psychological or cognitive impairments may require relatively more assessment services to assist them in selecting a vocational goal and more employment-development or educational services to prepare for a career than do persons who have other more specific needs. For example, consumers with vision or hearing impairments typically obtained assessment services and subsequent assistive devices, and received relatively fewer other services than did persons with other disabilities, and persons with mental retardation received fewer assessment services than other consumers and received a relatively larger number of employment-development services such as supported employment, work adjustment, job development, and job placement.

As noted earlier in this chapter, the analysis of relationships between services and disability type reveals that service patterns do differ by disability type and that these differences are complex in nature, requiring numerous combinations of services to describe the ways in which they differ. Further, within disability types there is a great deal of variation among services received, as demonstrated in the tables earlier in this chapter. Given the diverse demographic and educational background of VR consumers, along with the possibility of secondary disabilities, these findings further support the hypothesis that VR services are individualized to consumer needs.

Chapter 5

VR Services and Vocational Goal

Key to the development and implementation of a plan of VR services is selection of a vocational goal—typically the type of employment that the consumer desires to enter, or, in some instances, to maintain, through receipt of services that will support achievement of that goal. For analysis of the relationship between vocational goal and services that consumers receive, we have aggregated data on vocational goal into the primary categories of occupations contained in the Dictionary of Occupational Titles (DOT), the classification system in use at the time of the study's data collection.[1] Because the vocational goal is at the heart of the VR process, one topic of interest to the VR program and policy makers is the types of services that support achievement of various goals. This chapter examines the relationship between vocational goal and services that consumers receive. As with the previous chapter, we examine patterns of services through review of services for which at least 10 percent of consumers with a vocational goal in one of the broad occupational categories received that service.

To provide a context for the examination of service patterns by occupational type of vocational goal, we first review the goals of consumers who received services, including factors associated with selection of the goal. As shown in Table 5-1[54], 35 percent of VR consumers selected a vocational goal in professional, managerial, or technical occupations; 21 percent selected a goal in service occupations; 18 percent selected a goal in clerical or sales occupations; and 7 percent selected benchwork occupations.

Table 5-1. Occupational Type of Consumers' Vocational Goal

Occupational type	Percent
Professional, managerial, technical	34.8
Service	21.2
Clerical/sales	17.5
Benchwork	7.3
Structural work	3.4
Miscellaneous	3.9
Machine trades	2.9
Homemaker	3.9
Agriculture/fishing/forestry	1.4
Processing	0.9
Other	2.9

---

[1] The U.S. Department of Labor is a major sponsor of an ongoing project to develop a new classification system, called O*NET, which classifies jobs according to functional requirements. This system, when available, will be particularly useful for analyzing the employment goals and options among individuals with disabilities.

Relatively fewer consumers selected goals in other occupations: 3 percent in structural work; 4 percent in miscellaneous occupations (including motor freight, transportation, packaging and materials handling, and mining fields and others) or homemaking, and 3 percent in machine trades. As reported in Table 5-2[55], analysis of data in consumers' case files indicated that the consumer's choice was the principal determinant of the vocational goal. This finding is consistent with data reported in earlier sections of the report. For example, in an interview toward the end of VR services, 82 percent of consumers reported that either they alone or they together with their VR counselor selected the vocational goal. Eighty-one percent believed they had sufficient choice in selection of the goal, and 80 percent were very or mostly satisfied with the goal. Other factors associated with selection of a specific vocational goal included the job that the consumer held prior to or at application for VR services, counselor judgment, and employment prior to onset of disability (6 percent).

Table 5-2. Determinants of Consumers' Vocational Goal and of Subsequent Changes in Goal

Goal-related decisions	Percent
Determinant of initial goal	
Vocational evaluation	12.2
Consumer's choice	62.9
Employment at or prior to application	11.8
Counselor judgment	6.6
Employment prior to onset of disability	5.8
Family member/guardian	0.7
Total	100.0
Change in initial goal	18.3
Reason for change in initial goal	
Consumer's preference	61.5
Significance of disability	11.4
Lack of available jobs	8.0
Counselor judgment	2.2
Lack of available training	0.6
Problems with transportation	0.2
Other	16.2
Total	100.0

As noted in the Table 5-2, 18 percent of consumers changed their initial goal during their VR services. Principal reasons for change included consumers' preference (62 percent), significance of disability (11 percent), or lack of available jobs (8 percent). Table 5-3[56] reports the nature of change in vocational goal for consumers who changed their goal during VR services. As shown, 35 percent of consumers who changed goals selected an initial goal in professional, managerial, or technical occupations. Following the change, this percentage declined to 29 percent. Conversely, the percentage with a goal in service occupations increased from initial to final goal, from 22 to 27 percent, and those selecting clerical or sales occupations also increased slightly, from 15 to 18 percent. The percentage selecting homemaking as a goal remained the same.

The remainder of this chapter examines patterns of services among persons with vocational goals in seven types of occupations (for the two others, sample sizes were too small to permit analysis) and homemaking. Later chapters of the report explore the relationships between services and consumer outcomes.

Table 5-3. Occupational Type of Consumers' Initial and Final Vocational Goal for Consumers Who Changed Goals

Occupational type	Percent	
	Initial goal	Final goal
Professional, managerial, technical	34.5	28.9
Service	21.8	27.4
Clerical/sales	15.4	17.9
Benchwork	7.1	7.6
Structural work	4.7	5.0
Miscellaneous	3.7	3.0
Machine trades	3.1	3.6
Homemaker	3.1	3.1
Agriculture/fishing/forestry	1.8	1.4
Processing	1.4	1.1
Other	3.3	0.9

Professional, Managerial, and Technical Occupations

Nearly 60 percent of consumers with a vocational goal in these fields received medical evaluation as the most frequent service (Table 5-4)[57]. Other frequently received assessment services included vocational evaluation (31 percent), psychological or psychiatric evaluation (31 percent), and vision assessment (13 percent). Thus, four of the 13 most frequently received services were assessments. In terms of services other than assessments, these consumers often received counseling services (36 percent), transportation (24 percent), AT devices (22 percent), or medical services (16 percent). Some enrolled in business or vocational school (13 percent) or two-year community college (13 percent).[2] More than one-quarter of these consumers amended their IPE at least once during their VR services.

Table 5-4. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Professional, Managerial, or Technical Occupations (34.8 Percent of Consumers)

Service	Percent
Medical evaluation	58.7
Counseling	36.4
Vocational evaluation	30.7
Psychological/psychiatric evaluation	30.6
Transportation	24.2
Assistive technology devices	22.4
Medical services	15.6
Business/vocational training	13.2
Two-year community college	12.6
Vision assessment	12.5
Job placement	11.1
Tools/uniforms/equipment/stock	11.0
Maintenance	10.5
Case management services	
Eligibility determination	95.2
IPE development	94.9
IPE amendment	28.8

---

[2] Slightly under 10 percent (9.7 percent) enrolled in four-year college or university.

Service Occupations

Consumers selecting a vocational goal in service occupations frequently received 15 different services, four of which were assessment services (Table 5-5)[58]. The most frequent assessment service was medical evaluation; 52 percent of consumers with a goal in service occupations received this type of evaluation. They often received counseling services (30 percent), transportation (28 percent), and AT devices (20 percent). In terms of education, consumers with a service occupations goal enrolled in business or vocational schools (18 percent), community college (12 percent), or college or university programs (11 percent). Approximately one-quarter amended their IPE at least once during services.

Table 5-5. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Service Occupations (21.8 Percent of Consumers)

Service	Percent
Medical evaluation	51.8
Psychological/psychiatric evaluation	32.4
Counseling	30.3
Transportation	27.6
Vocational evaluation	25.0
Assistive technology devices	20.1
Business/vocational training	17.5
Vision assessment	14.8
Medical services	14.6
Maintenance	13.8
Two-year community college	12.4
Tools/uniforms/equipment/stock	11.5
Four-year college/university	10.9
Job development	10.2
Job search training	10.2
Case management services	
Eligibility determination	94.1
IPE development	94.4
IPE amendment	23.5

Clerical or Sales Occupations

The most frequent service received by consumers whose vocational goal was clerical or sales occupations was medical evaluation (58 percent) (Table 5-6)[59]. They also often received psychological or psychiatric assessment services (32 percent), vocational evaluation (27 percent), vision assessment (14 percent), or hearing assessment (12 percent). Among frequently received services other than assessments were counseling, transportation, and AT devices. Some consumers with a goal in these occupations enrolled in business or vocational school (16 percent) or community college (11 percent). About one-quarter amended their IPE at least once during VR services.

Table 5-6. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Clerical/Sales Occupations (17.5 Percent of Consumers)

Service	Percent
Medical evaluation	57.6
Counseling	32.4
Psychological/psychiatric evaluation	32.2
Transportation	30.2
Vocational evaluation	26.5
Assistive technology devices	24.5
Business/vocational training	16.0
Medical services	15.1
Vision assessment	14.3
Job placement	12.1
Hearing assessment	12.0
Tools/uniforms/equipment/stock	11.9
Two-year community college	11.3
Job development	10.3
Case management services	
Eligibility determination	95.9
IPE development	95.5
IPE amendment	24.6

Benchwork Occupations

As shown in Table 5-7[60], consumers with vocational goals in benchwork occupations frequently received various assessment services, including medical evaluation (62 percent), vocational evaluation (39 percent), psychological/psychiatric evaluation (29 percent), vision assessment (19 percent), and educational status evaluation (14 percent). The most frequent services these consumers received were counseling (38 percent) and transportation (28 percent). Some of them enrolled in educational institutions: 20 percent enrolled in business or vocational training; 15 percent in community college; and 11 percent in college or university. They much more often amended their IPE at least once during VR services than did consumers with other types of vocational goals (35 percent, compared with an overall average of 24 percent).

Table 5-7. VR Services Most Frequently Obtained by Consumers With a Vocational Goal in Benchwork Occupations (7.3 Percent of Consumers)

Service	Percent
Medical evaluation	62.0
Vocational evaluation	38.8
Counseling	38.4
Psychological/psychiatric evaluation	28.6
Transportation	27.8
Business/vocational training	19.9
Assistive technology devices	19.0
Vision assessment	18.7
Two-year community college	14.8
Educational status evaluation	14.3
Job placement	13.7
Tools/uniforms/equipment/stock	11.3
Medical services	10.9
Four-year college/university	10.7
Case management services	
Eligibility determination	92.5
IPE development	93.0
IPE amendment	34.5

Miscellaneous Occupations

Consumers with goals in miscellaneous occupations (e.g., transportation, motor freight, packaging and materials handling) received fewer different services that met the 10 percent criterion than did consumers with goals in other fields (Table 5-8)[61]. Of the 10 different services meeting the 10 percent criterion, three were assessments (medical, psychological, and vocational). Three were educational: four-year college or university (15 percent), community college (12 percent), and business or vocational school (11 percent). The remainder was such supportive services as counseling (29 percent) and transportation (21 percent), among others. About 20 percent amended their IPE at least once during their participation in VR.

Table 5-8. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Miscellaneous Occupations (3.9 Percent of Consumers)

Service	Percent
Medical evaluation	53.4
Psychological/psychiatric evaluation	29.3
Counseling	28.9
Vocational evaluation	24.8
Transportation	20.6
Assistive technology devices	18.2
Medical services	17.8
Four-year college/university	15.2
Two-year community college	11.9
Business/vocational training	10.9
Case management services	
Eligibility determination	97.1
IPE development	96.2
IPE amendment	19.1

Homemaking

Four percent of consumers listed the vocational goal as homemaking. As shown in Table 5-9, consumers with this goal received relatively more different services (15 overall) than did consumers with goals in other occupations (the average was 13 overall and for consumers interested in some occupations was as low as 10). Four of the most frequent services were assessments. These consumers enrolled in educational institutions relatively often, including business or vocational school (20 percent) and community college (13 percent). Among the types of programs they enrolled in were computer occupations, small business development, literacy, and early childhood development. They also received such services as transportation (31 percent), job placement (25 percent), AT devices (22 percent), and supported employment (17 percent), among others. They rarely amended their IPE (13 percent).

Table 5-9. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Homemaking (3.9 Percent of Consumers)

Service	Percent
Medical evaluation	52.2
Vocational evaluation	33.3
Psychological/psychiatric evaluation	32.2
Transportation	31.4
Job placement	24.6
Assistive technology devices	22.1
Counseling	21.1
Business/vocational training	20.4
Tools/uniforms/equipment/licenses	17.6
Supported employment	16.6
Vehicle maintenance/repair/insurance	14.9
Two-year community college	13.1
Medical services	10.8
Hearing assessment	10.5
Job search training	10.0
Case management services	
Eligibility determination	97.7
IPE development	98.5
IPE amendment	12.6

Structural Occupations

Table 5-10[62] reports the service patterns among consumers with a vocational goal in structural occupations (3.4 percent of consumers who received VR services). The most frequently received services were medical evaluation (57 percent) and psychological assessment (35 percent). These consumers also often received counseling, transportation, and medical services. In terms of education, consumers with this vocational goal enrolled in business or vocational training (19 percent) or community college (11 percent). They also received such employment-development services as job development and supported employment, and support services such as maintenance and tools or uniforms.

Table 5-10. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Structural Occupations (3.4 Percent of Consumers)

Service	Percent
Medical evaluation	57.1
Psychological/psychiatric evaluation	34.6
Counseling	31.4
Vocational evaluation	30.7
Transportation	25.7
Business/vocational training	18.7
Medical services	17.8
Job development	17.4
Assistive technology devices	16.5
Tools/uniforms/equipment/stock	14.6
Supported employment	11.7
Two-year community college	11.1
Maintenance	10.3
Case management services	
Eligibility determination	96.6
IPE development	95.6
IPE amendment	25.8

Machine Trades Occupations

Three percent of consumers listed vocational goals in machine trades occupations (Table 5-11). As with consumers interested in other fields, these consumers most frequently received medical evaluation (52 percent), along with psychological evaluation (27 percent), vocational evaluation (24 percent), and vision assessment (15 percent). They enrolled in business or vocational school (16 percent), community college (11 percent), or four-year college or university (10 percent). Examples of programs in which persons with a goal in this occupation enrolled were graphic design, computer sciences, undergraduate studies, and broadcasting. As with all other consumers, they often received transportation to facilitate their VR services (23 percent).

Table 5-11. VR Services Most Frequently Obtained by Consumers with a Vocational Goal in Machine Trades Occupations (2.9 Percent of Consumers)

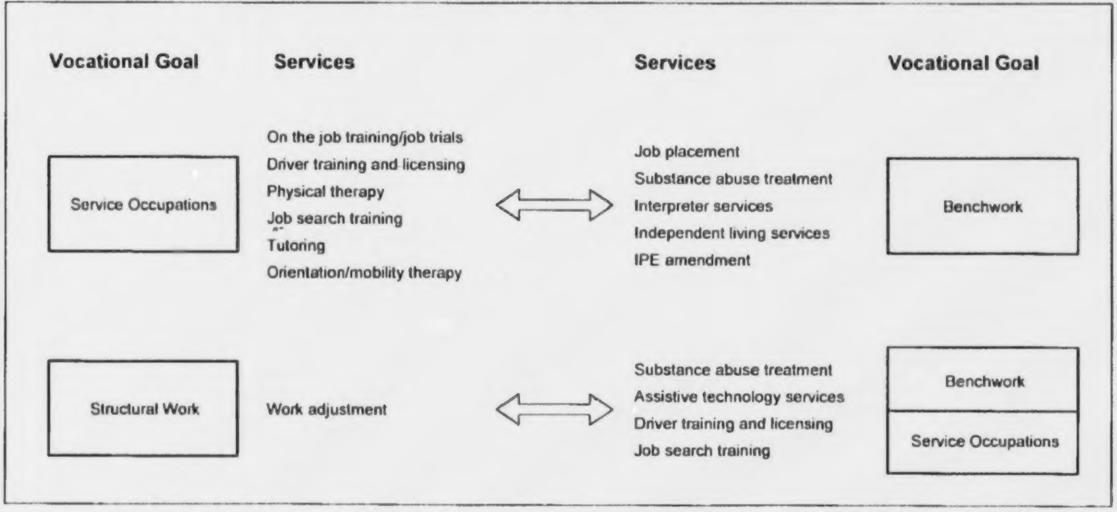
Service	Percent
Medical evaluation	51.5
Counseling	42.0
Psychological/psychiatric evaluation	27.4
Vocational evaluation	24.3
Transportation	23.0
Medical services	17.9
Assistive technology devices	17.2
Business/vocational training	15.8
Vision assessment	15.4
Two-year community college	10.9
Tools/uniforms/equipment/stock	10.5
Maintenance	10.1
Four-year college/university	10.0
Case management services	
Eligibility determination	96.0
IPE development	95.1
IPE amendment	23.2

Relationship Between Services and Vocational Goal

We used discriminant analyses to study statistically significant differences among service patterns for groups of consumers with varying vocational goals. For ease of interpretation, we limited our analysis to consumers with the five most common vocational goals—professional, managerial, or technical; service; clerical or sales, benchwork, and structural work. Our analysis revealed two significant canonical variables, described below, which means that there are two ways of combining the services that will show differences among the groups. Appendix C contains tables listing the weights for each service on each canonical variable and the means of each group on those same canonical variables.

On the first subset of services (i.e., first canonical variable), individuals with vocational goals in service occupations were most different from individuals with benchwork goals. As shown in Exhibit 5-1, services associated with goals in service occupations included on-the-job training or job trials, driver training and licensing, physical therapy, job search training, tutoring, and orientation/mobility therapy. Services associated with benchwork included job placement, substance abuse treatment, interpreter services, independent living services, and IPE amendment.

Exhibit 5-1. Relationship Between Service Patterns and Vocational Goal


Vocational Goal
Services
Services
Vocational Goal
Service Occupations
On the job training/job trials
Driver training and licensing
Physical therapy
Job search training
Tutoring
Orientation/mobility therapy
Job placement
Substance abuse treatment
Interpreter services
Independent living services
IPE amendment
Benchwork
Structural Work
Work adjustment
Substance abuse treatment
Assistive technology services
Driver training and licensing
Job search training
Benchwork
Service Occupations

BEST COPY AVAILABLE

The second subset of services discriminated between individuals with vocational goals in structural occupations and individuals with goals in benchwork or service occupations on a different combination of services. Individuals with goals in structural occupations received work adjustment services more often, while individuals with benchwork or service goals received substance abuse treatment, assistive technology services, driver training and licensing, and job search training more often.

These discriminant analyses reveal that, while service patterns differ somewhat according to vocational goals, these differences are relatively few and can be captured by fewer combinations of services than the differences associated with disability type.

Summary

A substantial majority of consumers' vocational goals were in three fields: professional, managerial, or technical occupations; service occupations; and clerical or sales occupations (see Table 5-1). These three types of occupations comprised the vocational goals of three-quarters of VR consumers, with goals in professional occupations most frequently selected. According to data in consumers' files, consumer preference was the single most important determinant of both initial and final goal for the 18 percent who changed goals over the course of VR services. Interviews with consumers indicated that four-fifths of consumers were generally satisfied with the process of goal setting, their control over the decision regarding vocational goal, and the goal itself. Consumers were also generally satisfied with decision making regarding services and the services they received, although they were somewhat less satisfied with the providers of services.

For all occupational types, medical evaluation was the most frequent service received by consumers with goals in those areas. Other frequent services differed somewhat by occupational field of vocational goal. Although most of the same services were frequently received by all consumers, their distribution varied somewhat according to goal, and some services (e.g., supported employment, four-year college) occurred infrequently and did not appear as frequent services for most goal areas. Given the impetus to individualized services that characterizes the VR program, the similarities in service patterns across occupational areas of vocational goal are perhaps more striking than the differences, however.

Chapter 6

VR Services and Consumer Outcomes

The key question regarding the VR program is the extent to which receipt of VR services improves the labor force participation and prospects of persons with disabilities. Previous chapters of this report have presented details of the VR process whose intent is to assist consumers to (1) select a vocational goal and criteria to measure progress toward that goal, (2) work with a counselor and other professionals to develop a plan of services and activities that optimally will eventuate in achievement of that vocational goal, (3) complete the various services that in combination will prepare the consumer to enter the labor force, and (4) achieve an employment outcome that is consistent with the consumer's preferences and capabilities. The earlier chapters examine in detail the services that the program is able to make available to consumers and the details of consumers' receipt of those services. In this chapter, we present findings on the economic outcomes of participation in that VR process. The chapter includes findings on economic outcomes of participation in VR services, the relationship between services and outcomes, and such other outcomes as community participation.

Among the measures of labor force participation that the VR longitudinal study examined are:

- P *employment* at exit from VR and at one, two, and three years following exit;
- P *earnings* at exit from VR and at one, two, and three years following exit;
- P relationship of earnings to the *federal poverty level* at exit and one, two, and three years following exit;
- P *hours worked* per week at exit from VR and at one, two, and three years following exit;
- P receipt of *benefits* through the job at exit from VR and at one, two, and three years following exit; and
- P *receipt of financial assistance* at study entry and at one, two, and three years following exit.

Data on these measures came from a combination of consumers' case records and annual interviews with the consumer or representative.

Given that the principal purpose of this report is to examine two research questions—first, the short- and longer-term outcomes that consumers achieve as a result of the VR services they receive, and, second, the extent to which specific VR services contribute to successful outcomes – we have approached these topics in two ways. To examine the outcomes that VR consumers achieve, in comparison with persons who did not receive VR services, we present findings that show differential employment, earnings, and hours worked in a series of tables. These tables report outcomes for persons who achieved an employment outcome, those who received services but did not achieve an employment outcome, those who were eligible but did not receive services, and those who were not eligible for VR services. Additionally, we present these findings separately for VR consumers who achieved a competitive versus a noncompetitive employment outcome. We report findings on receipt of benefits and job satisfaction for persons who achieved an employment outcome, those who received services but did not achieve an employment outcome but were working one or more years after exit from VR, and VR consumers who achieved a competitive versus a noncompetitive employment outcome.

Following the reports of these comparative analyses, we report findings from a series of inferential analyses whose purpose is to examine the extent to which specific services, given consumer characteristics (as reported in detail in Final Report 1), contribute to successful consumer outcomes. These analyses look at employment, competitive employment, earnings, and health benefits, respectively. The final section of the chapter addresses noneconomic outcomes.

Short- and Longer-Term Economic Outcomes of Participation in VR

Key economic outcomes reported in this section include retention of employment, changes in earnings, changes in hours worked, and receipt of a variety of employer-provided benefits. We also examine such other outcomes as job satisfaction, community integration, and independent living. (Study findings regarding consumers' perspectives on their VR experience appear in Chapter 2 in the section on the VR process.)

Achievement and Retention of Employment

The traditional measure of success among VR consumers and performance of the VR program overall is achievement of an employment outcome, defined as having entered employment and experienced 90 continuous days of employment thereafter. To examine both the program's performance in terms of employment outcomes at exit from the program and for a period thereafter, the study collected information on retention of employment among consumers who achieved an employment outcome. In addition, to examine the differential effects of VR services on short- and longer-term employment outcomes, the study collected information on the post-VR employment experiences of others who did not achieve an employment outcome when they exited. Finally, to examine the quality of employment, we examined outcomes for persons who achieved competitive and noncompetitive jobs and report the occupational fields of the jobs that VR consumers held at closure and over time.

Data on employment outcome at exit from VR are from VR case files. Persons whose files indicated that they exited VR without having achieved an employment outcome after receiving services may or may not have been working at the time their VR counselor closed their file, since in some instances (19 percent of persons exiting without an employment outcome after services) counselors closed files because they were unable to locate the consumer. Data on employment status among all study participants in subsequent years (annually up to three years after exit from VR), came from an annual interview with the consumer.

Table 6-1 reports findings on achievement and retention of employment over time. Among persons who achieved an employment outcome as a result of VR services (by definition, all of these consumers were working at exit from VR), 83 percent were working one year after exit, 79 percent were working two years after exit, and 76 percent were working three years after exit. In comparison, among persons who received services but failed to achieve an employment outcome, a much smaller percentage were working at one year (27 percent), two years (35 percent), or three years (37 percent) after exit from VR. The experience of these consumers is similar to that of persons who were eligible for services but did not choose to participate in VR. Slightly higher percentages of these persons were working at one, two, or three years after their exit from VR. They were much less often working than were persons who achieved an employment outcome, who were more than twice as likely to have retained employment over time. Finally, the study conducted one follow up of persons who applied for but were not eligible for VR services. Among this group, 37 percent reported that they were working one year later; somewhat more of them were working at that point than were persons in the other two groups of individuals who failed to achieve an employment outcome.

Table 6-2 reports findings on retention of employment over time for persons who achieved competitive or noncompetitive employment.1 (Seventy-six percent of employment outcomes were competitive.)[2] The percentage of both groups who were still working after exit from VR services is about the same for all three years.

Table 6-1. Employment Status of Former VR Consumers Over Time, by VR Exit Status

Exit status	Percent
Received VR services, achieved an employment outcome	
Working at exit	100.0
Working one year after exit	82.9
Working two years after exit	78.6
Working three years after exit	76.3
Received VR services, failed to achieve an employment outcome	
Working at exit	0.0*
Working one year after exit	26.8*
Working two years after exit	35.4*
Working three years after exit	36.9*
Eligible for VR services but did not receive services	
Working at exit	0.0*
Working one year after exit	33.4*
Working two years after exit	35.2*
Working three years after exit	39.5*
Not eligible for VR services	
Working at exit	0.0
Working one year after exit	37.4*

* Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who received VR services and achieved an employment outcome.

One-quarter of consumers whose employment outcome was in competitive employment entered a job in the professional, managerial, or technical fields (Table 6-3)[63]. By the end of the third year, 35 percent of the jobs these former VR consumers held were in these fields. The percentage with jobs in services occupations remained the same over the period, at one-

---

[1] "Noncompetitive employment" includes employment with earnings in jobs with supports for which the individual does not have to compete in the open labor market. Examples of noncompetitive employment include extended employment and supported employment. Jobs in homemaking or unpaid family work are excluded.

[2] It should be noted that the regulations published after the 1998 Amendments to the Act now require that, in order to be considered an "employment outcome," the individual must enter into or retain competitive employment in the integrated labor market, supported employment, or any other type of employment in an integrated setting. Extended employment is no longer counted as an employment outcome.

quarter of consumers, and the percentage of those with jobs in clerical or sales occupations declined somewhat, from 25 percent at exit from VR to 18 percent three years later. Among persons whose employment outcome was in a noncompetitve job, more held jobs in miscellaneous fields (including transportation, materials handling, and the like) than in other fields (45 percent at exit and 42 percent three years later), followed by service occupations and benchwork (24 percent and 18 percent, respectively, at exit; 26 percent and 12 percent three years later).

Table 6-2. Employment Status Over Time of Former VR Consumers, by Competitive and Noncompetitive Employment Outcome

Exit status	Percent
Received VR services, achieved a competitive employment outcome	**75.5**
Working at exit	100.0
Working one year after exit	83.8
Working two years after exit	80.5
Working three years after exit	78.3
Received VR services, achieved a noncompetitive employment outcome	**24.5**
Working at exit	100.0
Working one year after exit	79.8
Working two years after exit	71.8
Working three years after exit	69.6

Note: There were no significant differences ($p < .05$) between these values and the corresponding values for individuals who receive VR services and achieved a competitive employment outcome.

Among consumers who exited VR without an employment outcome, but who reported at subsequent follow-up interviews that they were working, the most frequent occupational fields were service (23 percent one year after exit and 29 percent the third year after exit); professional, managerial, or technical occupations (22 percent at year one, rising to 26 percent at year three); and miscellaneous occupations (21 percent at exit and 18 percent three years later). Among persons who were eligible for VR services but elected not to pursue services and who reported on their work status in subsequent years, the most frequent field of jobs held was service occupations (31 percent one year after exit from VR and 37 percent at the third-year follow up). They also held progressively more jobs in professional, managerial, or technical fields (from 17 percent to 23 percent over time) and progressively fewer jobs in clerical or sales occupations (from 22 percent one year after exit to 11 percent by the third year).

We also examined the experience of persons who exited VR with an employment outcome but reported that they were not working at subsequent annual follow-up interviews. Table 6-4[64] reports the percentage of persons not working at each of the three annual follow-up interviews separately for individuals whose initial employment outcome was in competitive employment and for those whose initial outcome was in noncompetitive employment. As shown, 16 percent of persons exiting into competitive employment reported not working one

Table 6-3. Occupational Field of Jobs at Closure and One, Two, and Three Years Later, by Exit Status

Occupational field of job	Percentage			
	At exit	1 year later	2 years later	3 years later
Achieved a competitive employment outcome				
Professional, managerial, technical	25.1	31.1	30.0	34.8
Service	24.4	23.2	24.2	24.1
Clerical/sales	25.0	18.3	18.5	17.9
Benchwork	6.0	4.4	4.1	4.5
Structural work	5.6	2.2	2.5	2.5
Miscellaneous	7.1	14.1	15.7	12.9
Machine trades	3.9	3.7	3.4	2.1
Agriculture/fishing/forestry	1.8	1.1	0.6	0.3
Processing	1.1	1.9	1.0	0.8
Achieved a noncompetitive employment outcome				
Professional, managerial, technical	2.7♦	7.1♦	10.1♦	11.4♦
Service	23.7	22.8	23.8	25.5
Clerical/sales	7.3♦	6.9♦	7.2♦	6.8♦
Benchwork	17.5♦	9.2	11.8♦	11.8♦
Structural work	0.7♦	0.6♦	1.0♦	1.1
Miscellaneous	44.6♦	48.9♦	43.6♦	41.8♦
Machine trades	0.2♦	2.9	0.7♦	1.3
Agriculture/fishing/forestry	1.7	0.9	0.7	0.3
Processing	1.7♦	0.9	1.2	0.0♦
Received VR services, failed to achieve an employment outcome				
Professional, managerial, technical	N/A	21.9	22.1	26.0
Service	N/A	23.1	33.6*	28.5
Clerical/sales	N/A	15.9	13.9	20.9
Benchwork	N/A	5.4	7.7	2.8
Structural work	N/A	1.9*	2.1	0.0*
Miscellaneous	N/A	21.4	15.5	17.6
Machine trades	N/A	3.5*	2.4	3.3
Agriculture/fishing/forestry	N/A	1.1	1.2	0.0
Processing	N/A	1.7	1.4	0.9
Eligible for VR services, but dropped out before services				
Professional, managerial, technical	N/A	16.5	20.6	22.7
Service	N/A	30.6	27.9*	36.8
Clerical/sales	N/A	21.7	19.9	11.4
Benchwork	N/A	5.0	4.8	5.8
Structural work	N/A	2.0*	1.8	1.6*
Miscellaneous	N/A	18.3	21.5	16.8
Machine trades	N/A	3.3*	3.5	3.1
Agriculture/fishing/forestry	N/A	1.4	0.0	1.3
Processing	N/A	1.1	0.0	0.5

♦ Indicates a significant difference (p <.05) between this value and the corresponding value for individuals who receive VR services and achieved a competitive employment outcome.

* Indicates a significant difference (p <.05) between this value and the corresponding value for individuals who received VR services and achieved an employment outcome.

year later; this percentage increased to 20 percent two years after exit and 22 percent three years after exit. Among persons exiting into noncompetitive employment, 20 percent reported not working one year later; 28 percent, two years later; and 31 percent, three years later. At all four time points, the preponderance of persons who had achieved an employment outcome had exited into competitive jobs (73 percent at exit). Over time, the distribution declined slightly to 71 percent of all persons exiting into employment who were not working at follow up by the end of the third year.

Table 6-4. Percentage of Consumers Not Working at Follow Up Among Persons Who Exited VR with an Employment Outcome

	Percentage	
Follow-up point	Persons exiting VR with a competitive employment outcome	Persons exiting VR with a noncompetitive employment outcome
At exit	0.0	0.0
One year after exit	16.2	20.2
Two years after exit	19.5	28.2
Three years after exit	21.7	30.7

Status of persons exiting with an employment outcome, but not working at follow up. In terms of status following exit, 12 percent of persons exiting with a competitive employment outcome who were not working one year later reported that they were working as a homemaker; 30 percent of those who exited into noncompetitive employment were homemakers one year later. About half of those who exited into competitive employment reported that they were looking for work; the comparable percentage for those exiting into noncompetitive employment was 27 percent. Slightly less than one-quarter (24 percent) of those whose employment outcome had been competitive reported that they were not working and not looking for work; the percentage among those exiting into noncompetitive employment was 28 percent. The most frequent reason for not working or looking for work was health problems: 41 percent of those exiting into competitive employment and 59 percent of those exiting into noncompetitive employment cited this reason at the first annual follow-up interview. (For the competitive employment group, this percentage increased in later years to 63 percent at the second follow-up interview and 65 percent at the third annual interview.) The small numbers of persons not working at subsequent follow-up points, combined with the relatively large numbers of response options, precludes description of findings regarding status or reasons for not working at the end of the second and third years for these groups.

Achievement and Retention of Earnings

Table 6-5. Earnings of Former VR Consumers Over Time, by VR Exit Status

Exit status	Hourly earnings	
	Mean	Median
Received VR services, achieved an employment outcome		
At exit	$7.33	$6.00
One year after exit	$8.03	$6.60
Two years after exit	$8.76	$7.25
Three years after exit	$9.62	$7.65
Received VR services, failed to achieve an employment outcome		
At exit	$0.00	$0.00
One year after exit	$7.97	$6.50
Two years after exit	$8.33	$7.00
Three years after exit	$9.11	$6.93
Eligible for VR services but did not receive services		
At exit	$0.00	$0.00
One year after exit	$7.30	$6.30
Two years after exit	$8.24	$7.25
Three years after exit	$8.24	$7.50
Not eligible for VR services		
At exit		
One year after exit	$8.28	$7.00

At exit from VR, consumers who achieved an employment outcome as a result of VR services earned an average of $7.33 per hour (median $6.00) (Table 6-5). This hourly rate increased steadily over time, to $9.62 (median $7.65) per hour at the end of year three. The study collected information on subsequent employment experience of persons exiting without an employment outcome following VR services. The earnings of this group also progressed, although at each time point they earned less per hour than did persons with an employment outcome. Similarly, persons eligible for but not receiving VR services were earning about the same at the end of one year that consumers with an employment outcome were earning at exit. While their earnings increased from year one to year two, the average increase leveled off from year two to year three. These persons earned considerably less than those with an employment outcome at each time point. They also earned less each year, on average, than did persons exiting without an employment outcome after services, although in later years their median hourly wage was slightly higher.

As shown in Table 6-6, the difference in hourly wage between competitive and noncompetitive jobs is substantial. Consumers in competitive jobs earned an average of $7.63 per hour at closure (median $6.30) and progressed steadily to an average of $10.06 (median $8.00) three years following exit from VR. Consumers who entered noncompetitive jobs started at $4.98 per hour (median $4.25) and by the end of three years were averaging $4.63 per hour (median $4.90). Thus, they were earning a little less than one-half the salary of persons in competitive jobs. These analyses do not include persons who entered jobs without earnings, such as homemaking or unpaid family work.

Table 6-6. Earnings of Former VR Consumers Over Time, by Competitive and Noncompetitive Employment Outcomes

Exit status	Hourly earnings	
	Mean	**Median**
Received VR services, achieved a competitive employment outcome		
At exit	$7.63	$6.30
One year after exit	$8.43	$7.00
Two years after exit	$9.26	$7.79
Three years after exit	$10.06	$8.00
Received VR services, achieved a noncompetitive employment outcome		
At exit	$4.98✓	$4.25
One year after exit	$4.80✓	$4.50
Two years after exit	$4.50✓	$5.00
Three years after exit	$4.63✓	$4.90

✓Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who receive VR services and achieved a competitive employment outcome.

Relationship of Earnings to the Federal Poverty Level

In addition to analysis of hourly wage as a measure of earnings, analysis of wages in the context of the federal poverty level is useful in a consideration of the benefits that consumers receive as a result of VR services. We based this analysis on the Census Bureau's poverty level criterion for a single person's monthly income in FY 1996, which was $666.25, or $7,995 per year, and used constant 1996 dollars. We included in these analyses only persons who were working (i.e., had earnings) at each of the relevant time points.

As shown in Table 6-7, 14 percent of the general population in the United States was below the poverty level in FY 1996, compared with 22 percent of persons who exited VR into competitive employment and 81 percent of those exiting VR into noncompetitive employment. Percentages of each group earning more than 200 percent of the poverty level (at least $1,333 per month, or $15,990 per year), were 62 percent of the general population, 32 percent of persons who exited VR with a competitive employment outcome, and 6 percent of persons who exited VR into noncompetitive employment.

Table 6-7. Relationship of Earnings to the Federal Poverty Level at Exit and One, Two, and Three Years Later, by Type of Exit

	Percentage				
Income relative to federal poverty levels**	**General population (FY 1996)**	**Persons exiting VR with a competitive employment outcome**	**Persons exiting VR without an employment outcome after services**	**Persons exiting VR without an employment outcome before services**	**Persons exiting VR with a non-competitive employment outcome**
At exit from VR					
Less than federal poverty level	14.0	21.7			81.0*
More than 200% of poverty level	61.5	31.5			6.4*
One year after exit					
Less than federal poverty level		22.3	33.1*	36.3*	66.1*
More than 200% of poverty level		38.3	25.0*	25.1*	13.7*
Two years after exit					
Less than federal poverty level		18.6	33.1*	28.1*	64.1*
More than 200% of poverty level		45.8	30.0*	36.7	13.9*
Three years after exit					
Less than federal poverty level		20.2	31.9*	33.9*	62.5*
More than 200% of poverty level		46.2	28.2*	39.5	20.1*

* Indicates a significant difference ($p < .05$).

** Poverty level information is based on the Census Bureau's criteria for a single person in FY 1996 ($666.25 per month). The analysis uses constant 1996 dollars.

Among persons exiting into competitive employment, the percentage below poverty remained relatively stable over time, ranging between 19 and 22 percent across the three years. The percentage with earnings more than 200 percent of poverty increased over time, to 46 percent by the end of three years. In comparison with other groups, including persons exiting without an employment outcome after services, those dropping out before services, and those exiting into noncompetitive employment, fewer competitively employed persons were below the poverty level at one, two, and three years after exit. More were above 200 percent of the poverty level at each time point as well. For example, one year after exit, 22 percent of competitively employed persons were below poverty, compared with 33 percent of those who had exited VR without an employment outcome after services, 36 percent of those who had dropped out before services, and 66 percent of persons who had exited into noncompetitive employment. Conversely, while 38 percent of persons exiting into competitive employment had earnings over 200 percent of poverty, fewer of those who had exited after services without an employment outcome, had dropped out, or had exited into noncompetitive employment had earnings at this level (25 percent, 25 percent, and 14 percent, respectively). These patterns generally persisted in years two and three, as well.

Hours Worked Per Week

Table 6-8. Hours Worked Per Week of Former VR Consumers Working Over Time, by VR Exit Status

Exit status	Hours per week	
	Mean	Median
Received VR services, achieved an employment outcome		
At exit	33.7	40.0
One year after exit	34.7	40.0
Two years after exit	35.0	40.0
Three years after exit	34.5	40.0
Received VR services, failed to achieve an employment outcome		
At exit	0.0	0.0
One year after exit	32.3*	37.0
Two years after exit	32.0*	36.0
Three years after exit	31.9	35.0
Eligible for VR services but did not receive services		
At exit		
One year after exit	31.6*	35.0
Two years after exit	35.3*	40.0
Three years after exit	33.4	40.0
Not eligible for VR services		
At exit		
One year after exit	35.5	40.0

* Indicates a significant difference (p <.05) between this value and the corresponding value for individuals who received VR services and achieved an employment outcome.

Another consideration in terms of employment and earnings is whether or not jobs are full time; this issue is particularly important in that many part-time jobs do not include benefits to the extent that full-time jobs do; additionally, they often pay less. As shown in Table 6-8, consumers who achieved an employment outcome as a result of VR services averaged 33.7 hours (median 40.0) at exit from VR; the average increased somewhat, to 34.5 hours per week (median 40.0) by the end of the third year. The fact that the average is lower than the median indicates that a fair number of consumers were working in jobs that were less than full time, although that number declined somewhat over time. Among persons who exited without an employment outcome, the average hours worked was 32.3 one year after closure, among the 27 percent of these consumers who were working at that point. Their average and median hours worked declined slightly from year one to year three, with an average at the end of year three of 31.9 and a median of 35.0. Persons who were eligible but did not receive services, in comparison with persons who achieved an employment outcome, averaged fewer hours per week one year after exit from VR (31.6 compared with 33.7; median 35.0 versus 40.0), and worked slightly about an hour less per week by the end of year three, on average (33.4 versus 34.5). Conversely, persons who were not eligible for VR services averaged an hour more per week by the end of one year than did persons who exited with an employment outcome (35.5 versus 34.5).

Persons with competitive jobs increased their average hours worked per week by one hour over the three year period (34.6 to 35.9); the median at each time point was 40 hours, or full time (Table 6-9). Persons in noncompetitve jobs, however, did not typically work full time. At exit from VR, they averaged 28.7 (median 30.0) hours per week; by the end of three years, they were averaging 28.8 hours (median remained at 30.0).

Table 6-9. Hours Worked Per Week of Former VR Consumers, by Competitive and Noncompetitive Employment Outcome

	Hours per week	
Exit status	**Mean**	**Median**
Received VR services, achieved a competitive employment outcome		
At exit	34.6	40.0
One year after exit	35.9	40.0
Two years after exit	36.4	40.0
Three years after exit	35.9	40.0
Received VR services, achieved a noncompetitive employment outcome		
At exit	28.7✎	30.0
One year after exit	29.9✎	30.0
Two years after exit	29.6✎	30.0
Three years after exit	28.8✎	30.0

✎Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who receive VR services and achieved a competitive employment outcome.

Health and Other Benefits

Less than one-third of consumers who exited VR with an employment outcome entered a job with health insurance benefits (Table 6-10). At exit, as noted earlier, 83 percent of persons achieving an employment outcome were still working one year later. At that point, 41 percent of these former consumers received health insurance through their job. That percentage increased over time, to 46 percent at the end of the second year and to 50 percent by the end of the third year. National figures are around 52 percent (Hayward and Tashjian, 1996), indicating that VR consumers who achieved an employment outcome are nearly as well off in terms of health insurance by the end of three years of employment as are other workers. Other employment benefits of these workers also increased over time. Sick leave mirrored health insurance, and somewhat more workers (51 percent after one year and 58 percent after three years) held jobs that provided vacation leave. Lower percentages held jobs with life insurance, retirement plans, or dental insurance.

Table 6-10. Percentage of Former VR Consumers with Benefits Provided by Their Employer, by VR Exit Status

Benefits	At exit	One-year follow up	Two-year follow up	Three-year follow up
Received VR services, achieved an employment outcome				
Health insurance	31.8	40.5	46.2	49.6
Vacation leave		50.7	56.0	57.8
Sick leave		41.7	46.7	49.3
Life insurance		31.8	37.3	40.1
Retirement plan		28.9	36.8	39.7
Dental insurance		27.7	34.2	35.7
Other benefits		12.5	11.7	11.7
Received VR services, failed to achieve an employment outcome				
Health insurance	N/A	26.0*	32.3*	41.5
Vacation leave		35.3*	37.3*	41.7*
Sick leave		25.0*	28.3*	34.8*
Life insurance		21.5*	24.2*	26.6*
Retirement plan		18.1*	20.8*	27.4*
Dental insurance		19.4*	24.2*	27.9
Other benefits		6.6*	6.7*	10.2

* Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who received VR services and achieved an employment outcome.

Consumers who left VR services prior to achieving an employment outcome and who were working one year after exit less often held jobs with health insurance; 26 percent after one year, progressing to 42 percent after three years. Similarly, they less often received sick leave (25 percent after one year and 35 percent after three years) or vacation leave (35 percent after one year and 42 percent after three years) and did not often receive other job-related benefits such as life insurance or retirement plans.

Predictably, consumers whose job was in the competitive labor market much more often had employer-provided benefits than did those entering noncompetitive employment (Table 6-11[65]). At exit from VR, 36 percent entered jobs with health insurance benefits, and 58 percent of competitively employed consumers had health insurance by the end of three years of employment; 56 percent had sick leave, and 65 percent had vacation leave by the end of three years. Almost half had life insurance or a retirement plan. Conversely, very few noncompetitvely employed former VR consumers had benefits; the most frequent was vacation leave, with 25 percent having this benefit by the end of their first year of employment and

29 percent by the end of their third year. Given the importance of lack of health insurance as a deterrent to employment among persons with disabilities, the advantages of obtaining competitive employment are clear.

Table 6-11. Percentage of Former VR Consumers with Benefits Provided by Their Employer, by Competitive and Noncompetitive Employment Outcome

	Percentage			
Benefits	**At exit**	**One-year follow up**	**Two-year follow up**	**Three-year follow up**
Achieved a competitive employment outcome				
Health insurance	36.4	47.0	54.0	57.9
Vacation leave		57.4	63.4	65.4
Sick leave		48.1	53.1	56.3
Life insurance		36.9	43.2	47.3
Retirement plan		34.2	43.1	46.5
Dental insurance		32.5	40.3	42.4
Other benefits		14.1	13.2	13.7
Achieved a noncompetitive employment outcome				
Health insurance	9.5*	15.0*	15.6*	17.9*
Vacation leave		24.6*	27.2*	28.5*
Sick leave		16.8*	22.0*	22.1*
Life insurance		12.3*	14.3*	12.9*
Retirement plan		8.4*	12.3*	13.7*
Dental insurance		9.2*	10.3*	10.3*
Other benefits		6.4*	5.8*	4.1*

* Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who receive VR services and achieved a competitive employment outcome.

Receipt of Financial Assistance

In addition to retention of earnings, changes in health benefits, and other outcomes, another measure of the economic effects of VR services is change in receipt of public financial assistance over time. Table 6-12[66] reports findings on changes in receipt of any financial assistance from entry to one, two, and three years after exit from VR services. It also reports findings on changes in receipt of SSI/disabled, SSDI, Worker's Compensation, and other public assistance (e.g., TANF, general assistance). For this analysis, we tested the significance of differences between persons with an employment outcome and two other groups: those exiting VR without an employment outcome following services and those accepted for services who dropped out of VR prior to services. The group with an employment outcome included both persons who entered competitive employment and those whose employment outcome was noncompetitive.

As shown in the table, fewer persons who subsequently exited VR services with an employment outcome were receiving financial assistance at entry than were those who later exited VR after services without an employment outcome or those exiting before services (44 percent versus 55 and 57 percent, respectively). These differences continued over time: by the end of the third year after exit, 33 percent of those with an employment outcome continued to receive assistance, while the percentages of the other two groups remained about the same (55 percent and 54 percent, respectively). At study entry, 14 percent of all consumers who received services and later achieved an employment outcome were receiving SSI-disabled; this percentage remained relatively stable over time, increasing slightly to 17 percent by the end of three years. In comparison, those exiting after services without an employment outcome and those dropping out before services more often received SSI-disabled at entry (22 and 21 percent). By the third year following exit, these percentages had risen to 34 and 27 percent.

The situation was similar for SSDI benefits, although the percentage of all groups receiving these benefits was lower: 10 percent at entry for those with an employment outcome (which declined slightly to 9 percent by the third year following exit), compared with 15 percent of those without an employment outcome and 16 percent of those who dropped out before services. For the latter two groups, receipt of SSDI had risen by the third year to 21 percent for each group.

Table 6-12. Receipt of Financial Assistance at Entry to VR and Following Exit, by Type of Exit

	Percentage		
	Persons exiting VR with an employment outcome	Persons exiting VR without an employment outcome after services	Persons exiting VR without an employment outcome before services
Receiving any financial assistance			
At study entry	43.9	55.1*	56.8*
One year after exit	30.0	58.5*	58.2*
Two years after exit	29.9	57.4*	52.4*
Three years after exit	32.6	55.3*	54.1*
Type of financial assistance, percentage of all consumers			
SSI/disabled			
At study entry	13.7	22.3*	20.9*
One year after exit	14.5	33.1*	27.3*
Two years after exit	15.2	34.4*	27.8*
Three years after exit	17.2	33.7*	27.0*
SSDI			
At study entry	9.7	14.9*	15.8*
One year after exit	9.2	20.2*	19.1*
Two years after exit	9.3	20.3*	17.2*
Three years after exit	9.1	20.5*	20.6*
Worker's Compensation			
At study entry	2.9	4.0	6.3*
One year after exit	0.7	1.6*	3.5*
Two years after exit	1.1	1.5	2.4
Three years after exit	0.9	1.8	2.3
Other public assistance			
At study entry	15.0	17.3	21.6*
One year after exit	7.1	13.8*	19.1*
Two years after exit	4.5	11.2*	13.1*
Three years after exit	5.7	9.8*	12.3*

* Indicates a significant difference from persons with an employment outcome ($p < .05$).

At entry, more consumers who dropped out prior to services were receiving Worker's Compensation, although the percentage was low (6 percent compared with 3 percent of those who subsequently exited with an employment outcome). More of the dropouts continued on this benefit one year following exit (4 percent), although the percentage did decline somewhat. Finally, consumers with an employment outcome less often received other public assistance than did those who dropped out before services (15 versus 22 percent). This pattern continued following exit, with both those exiting without an employment outcome following services and those who exited before services more often receiving this assistance than were persons with an employment outcome. The relative percentages by the third year were 6, 10, and 12 percent, respectively.

Persons whose employment outcome was in the competitive labor market also differed from those who entered noncompetitive employment on most of these measures. As shown in Table 6-13[67], 39 percent of consumers who later exited into competitive employment were receiving some form of financial assistance at entry, compared with 62 percent of consumers who later entered noncompetitive jobs. By the third year after exit, more than twice as many in noncompetitive employment were receiving some form of financial assistance (55 versus 26 percent). In terms of SSI/disabled, for both groups the percentage who received this benefit increased somewhat from entry to three years after exit: from 10 to 12 percent for those in competitive jobs and from 27 to 35 percent for those in noncompetitive jobs. At each time point, more noncompetitively employed persons were receiving this benefit than were those in competitive jobs. Similarly, more noncompetitively employed persons were receiving SSDI at each time point, although for this benefit and for each group the percentage receiving SSDI remained about the same over time (9 percent at entry and 8 percent at three years after exit for competitively employed persons; 14 percent at entry and 15 percent at three years after exit for noncompetitively employed persons).

Among persons who exited VR with an employment outcome but were not working at subsequent annual follow-up interviews, the pattern of financial assistance differed somewhat. As shown in Table 6-14[68], about the same percentage of these consumers as those retaining employment at follow up were receiving financial assistance at study entry: 41 percent of those later exiting into competitive employment and 71 percent of those later exiting into noncompetitive employment. However, the percentages of consumers in both groups more often reported receipt of financial assistance at follow up. Among persons whose employment outcome was competitive but who were not working at follow up, 49 percent reported receipt of financial assistance one year after exit; 47 percent, two years later; and 45 percent, three years later. Comparable figures among those whose employment outcome was noncompetitive were 76 percent one year after exit; 75 percent at two years, and 76 percent at three years. As shown in the table, percentage of persons reporting receipt of SSI-disabled increased over time for both groups, as did receipt of SSDI among persons whose outcome had been competitive employment. (Numbers were too small for reporting of other findings on financial assistance.)

Table 6-13. Receipt of Transfer Payments at Entry to VR and Following Exit, by Job Type at Exit

	Percentage	
Type of benefit	**Persons exiting VR with a competitive employment outcome**	**Persons exiting VR with a noncompetitive employment outcome**
Receiving any financial assistance		
At study entry	38.7	62.4*
One year after exit	23.3	54.2*
Two years after exit	23.6	51.8*
Three years after exit	26.0	54.7*
Type of financial assistance, percentage of all consumers		
SSI/disabled		
At study entry	10.0	27.3*
One year after exit	10.1	30.9*
Two years after exit	11.0	30.2*
Three years after exit	11.8	35.1*
SSDI		
At study entry	8.5	14.3*
One year after exit	6.8	18.0*
Two years after exit	6.6	18.7*
Three years after exit	7.5	14.6*
Worker's Compensation		
At study entry	3.4	1.0*
One year after exit	0.7	0.6
Two years after exit	1.3	0.2*
Three years after exit	1.0	0.4
Other public assistance		
At study entry	13.1	22.0*
One year after exit	6.0	11.3*
Two years after exit	4.2	5.5
Three years after exit	5.2	7.3

* Indicates a significant difference from persons with a competitive employment outcome ($p < .05$).

Table 6-14. Receipt of Transfer Payments at Entry to VR and Following Exit, by Job Type at Exit Among Former Consumers Exiting VR with an Employment Outcome but Not Working at Follow Up

	Percentage	
Type of benefit	**Persons exiting with a competitive employment outcome**	**Persons exiting with a noncompetitive employment outcome**
Receiving any financial assistance		
At study entry	40.8	71.2
One year after exit	49.2	76.2
Two years after exit	46.7	75.1
Three years after exit	44.5	75.9
Type of financial assistance		
SSI/disabled		
At study entry	11.3	29.2
One year after exit	19.8	38.8
Two years after exit	24.9	48.5
Three years after exit	22.1	--
SSDI		
At study entry	11.1	--
One year after exit	14.3	30.0
Two years after exit	12.3	--
Three years after exit	--	--

-- Cell sizes insufficient to report.

Job Satisfaction

At each of the annual follow-up interviews conducted with study participants following their exit from VR,[2] the y responded to a series of questions concerning various aspects of their employment, including their relative satisfaction with earnings, fringe benefits, extent to which they felt integrated in the workplace, opportunity for advancement in their job, and level of support they believed they had from their employer. Table 6-15[69] reports findings on these issues. Regarding earnings, nearly one-third of consumers with a competitive employment outcome indicated that they were not satisfied with their earnings levels at the end of the first and second years of employment; this percentage declined slightly to around one-quarter by

---

[2] The number of post-exit follow-up interviews varied from none to three, depending on when a consumer exited VR in comparison to how long he or she had been in the study at exit. For example, persons who entered the study as applicants for VR services may have continued to receive services over the three-year period of study participation and not have received any post-exit follow-up interviews. Those who entered the study at or after exit from VR would have been eligible to receive three annual follow-up interviews.

Table 6-15. Percentage of Former VR Consumers Reporting Satisfaction with Selected Aspects of Their Employment, for Consumers with Competitive or Noncompetitive Jobs and Those Without an Employment Outcome

	Percentage								
	One-year follow up			Two-year follow up			Three-year follow up		
Job characteristics	*Very* satisfied	Satisfied	*Not* satisfied	*Very* satisfied	Satisfied	*Not* satisfied	*Very* satisfied	Satisfied	*Not* satisfied
Achieved a competitive employment outcome									
Earnings	11.8	55.6	32.6	10.7	57.5	31.9	11.1	62.3	26.6
Fringe benefits	15.4	45.5	39.0	15.3	49.9	34.8	17.7	51.2	31.0
Integration in the workplace	30.3	56.8	12.9	26.3	62.0	11.7	29.0	61.5	9.6
Opportunity for advancement	14.5	51.2	34.3	10.2	54.7	35.1	11.4	56.4	32.3
Employer support	31.5	53.2	15.4	28.2	56.5	15.3	32.4	58.1	9.5
Achieved a noncompetitive employment outcome									
Earnings	12.6	59.9	27.6	11.7	58.7	29.6	10.6	68.8	20.5
Fringe benefits	9.8✒	41.3	48.9✒	12.4	49.9	37.7	11.7	57.3	31.0
Integration in the workplace	28.0	60.0	12.0	35.0✒	57.3	7.7	30.1	57.2	12.7
Opportunity for advancement	11.2	52.4	36.4	9.3	63.8✒	26.9✒	8.0	71.5✒	20.5✒
Employer support	37.0	50.6	12.4	35.5	57.2	7.3✒	31.3	61.9	6.8
Received VR services, failed to achieve an employment outcome									
Earnings	10.7	52.1	37.2	8.1	51.3	40.6•	5.9	55.8	38.3•
Fringe benefits	8.8	37.1	54.1	7.3	39.3	53.4•	8.2	47.9	43.9•
Integration in the workplace	25.1	58.8	16.2	21.8	58.5	19.6•	20.0	65.5	14.6•
Opportunity for advancement	13.6	43.9	42.5•	7.3	50.8	41.9•	7.4	53.3	39.4
Employer support	23.7	59.7	16.6	23.4	56.2	20.4•	28.2	50.2	21.5•

✒ Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who received VR services and achieved a competitive employment outcome.

• Indicates a significant difference ($p < .05$) between this value and the corresponding value for individuals who received VR services and achieved an employment outcome.

the end of the third year. Somewhat more consumers without an employment outcome who reported they were working at the follow-up points were dissatisfied with their earnings, around two-fifths in all three years following exit from VR. Among both groups, around half reported satisfaction with earnings, but very few responded that they were "very satisfied." Consumers in noncompetitive employment reported increasing satisfaction with earnings over time, from 60 percent at the end of year one to 69 percent at the end of year three. Among the three groups, persons who had exited VR without an employment outcome and those in noncompetitive employment were less satisfied with fringe benefits than were those in competitive employment, who, as noted earlier, had relatively more fringe benefits than did the other two groups. In terms of opportunity for advancement, around one-half of persons in competitive jobs reported satisfaction with their opportunities at year one; this percentage increased slightly, to 56 percent, by the end of year three. Those in noncompetitive jobs, however, were increasingly satisfied with their opportunities; ranging from 52 percent at the end of the first year to 72 percent at the end of the third year. Persons who had exited VR

BEST COPY AVAILABLE

without a job were generally less satisfied, but did indicate their satisfaction with their prospects improved over time, from 44 percent to 53 percent.

Over half of all groups reported satisfaction with their level of integration in the workplace: by the end of year three, 62 percent of persons in competitive employment, 57 percent of persons in noncompetitive employment, and 66 percent of those who had exited without an employment outcome were satisfied with this aspect of their jobs. More were very satisfied with this dimension of their working life than with any other; between 20 and 35 percent were very satisfied, although for the group without an employment outcome, this percentage declined over time. For those with an employment outcome who were in competitive or noncompetitive employment, satisfaction with level of employer support was also relatively high, increasing from 53 percent at year one to 58 percent at year three among those with competitive jobs and from 51 percent to 62 percent for those in noncompetitive jobs. Conversely, persons working who had exited without an employment outcome were less satisfied with the level of employer support over time, from 60 percent at year one to 50 percent at year three. Overall, consumers in all groups were less satisfied with fringe benefits than with other aspects of the job; most were satisfied or very satisfied with integration in the workplace.

Relationship Between Specific Services and Consumer Outcomes {tc "Relationship Between Specific Services and Consumer Outcomes " \l 2}

Previous sections of this report have described the varying patterns of services that VR consumers receive and how these services differ according to disability characteristics and vocational goals. In this section we address one of the key study questions: To what extent do specific VR services contribute to successful consumer outcomes? To learn which services contribute to positive consumer outcomes, we used relational analyses that examine the multiple correlations between services and outcomes while holding consumer characteristics constant. As we reported in the First Final Report of this study, a number of consumer characteristics are positively or negatively related to achievement of an employment outcome. Building upon those findings, we included the following characteristics as covariates in the analyses reported here:

- significance of disability,
- type of disability,

- receipt of SSDI/SSI financial assistance,
- self-esteem (as measured by a scale of self-reported items),
- working at application to VR,
- number of dependents, and
- race/ethnicity other than white.

Our analyses asked the question, "Given that these individual characteristics affect consumer outcomes, how much do specific services additionally contribute to the outcomes?" We conducted regression analyses[3] to investigate the unique effects of the services, using the above listed characteristics as covariates, meaning that we controlled for their effects. For these analyses we included services in the following categories: employment-development services; cognitive/psychosocial services; medical/functional services; mobility-related services; postsecondary education services; other education services; and miscellaneous support services. We also included IPE amendment from the case management services category. We did not include services that virtually all consumers received (eligibility determination and IPE development), nor did we include assessments, since we did not believe that assessments alone (that is, not followed by a related service) would affect consumer outcomes. In addition to services, we included one other variable mentioned elsewhere in this report—the quality of the consumer/counselor relationship, as we believe it has the potential to be an important aspect of the services a consumer receives.

The outcome variables[4] for which we conducted these analyses included:

- employment at closure and at one and two years after closure,
- competitive versus noncompetitive employment at closure and at one and two years after closure,
- earnings at closure and at one and two years after closure, and
- health benefits with employment at closure and at one and two years after closure.

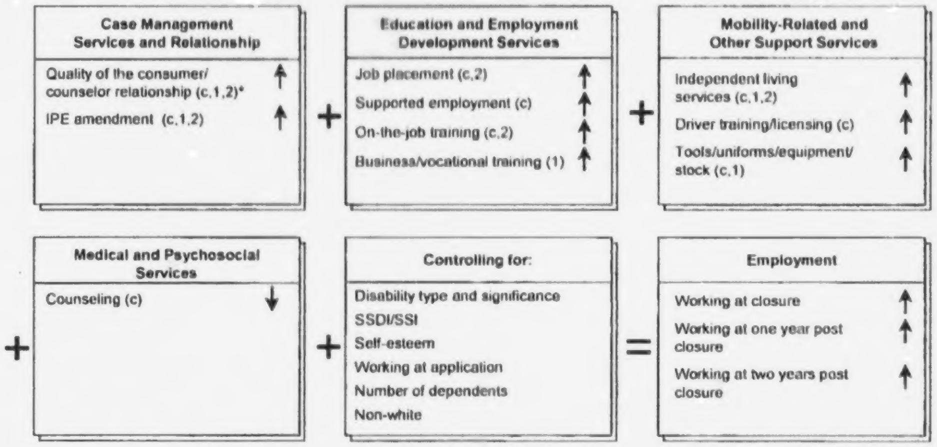
---

[3] We used logistic regression when the outcome was a dichotomous variable (employment outcome, competitive employment outcome, and receipt of benefits).

Achievement of an Employment Outcome

As shown in Exhibit 6-1[70], the logistic regression analyses for the first class of outcomes above (working versus not working) revealed a number of services that are related to an increased likelihood that a VR consumer would achieve an employment outcome. (Odds ratios are shown in Appendix D, Tables D-1 to D-3). Specifically, the services shown in the exhibit accounted for a significant proportion of the variance in employment, controlling for the effects of the listed covariates. At exit from VR, and with a sample size of 3,237 consumers (those individuals for whom data were available on all variables in the model), these variables accounted for 23 percent of the variance (that is, $R^2 = 0.23$) in employment outcome. This is an impressively high R^2 value for social science research. The proportion of variance accounted for by this model at one and two years following closure is somewhat less (0.16 and 0.18, respectively) but still significant and substantively important.

Exhibit 6-1. Services That Lead to Employment


Case Management Services and Relationship
Quality of the consumer/ counselor relationship (c,1,2)* ↑
IPE amendment (c,1,2) ↑
+
Education and Employment Development Services
Job placement (c,2) ↑
Supported employment (c) ↑
On-the-job training (c,2) ↑
Business/vocational training (1) ↑
+
Mobility-Related and Other Support Services
Independent living services (c,1,2) ↑
Driver training/licensing (c) ↑
Tools/uniforms/equipment/ stock (c,1) ↑
+
Medical and Psychosocial Services
Counseling (c) ↓
+
Controlling for:
Disability type and significance
SSDI/SSI
Self-esteem
Working at application
Number of dependents
Non-white
=
Employment
Working at closure ↑
Working at one year post closure ↑
Working at two years post closure ↑

R^2 at closure = 0.23; one-year follow-up = 0.16; two-year follow-up = 0.18.

* Indicates time point(s) at which this is a significant predictor: closure (c), one-year follow-up (1), two-year follow-up (2).

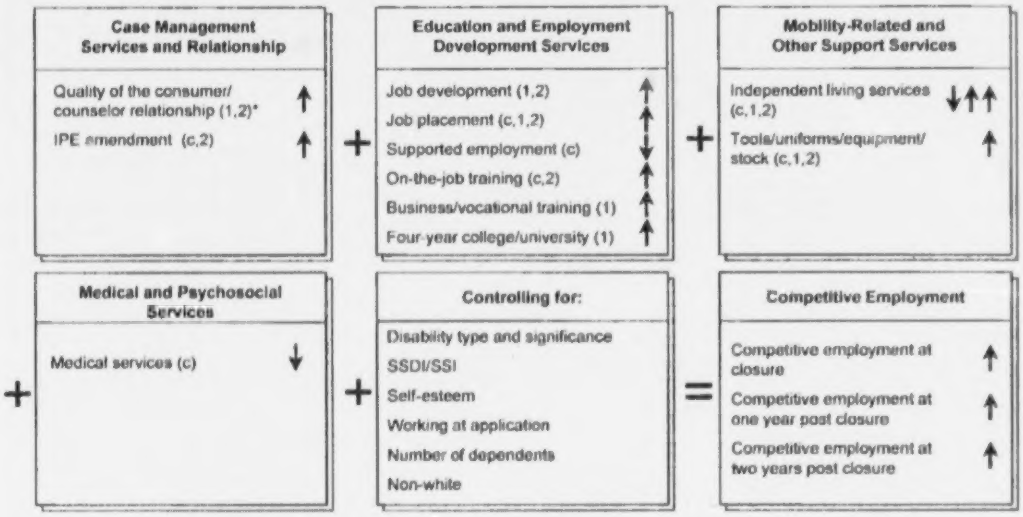
We need to interpret carefully the results of this analysis (and those reported below) because we cannot infer that these specific services would be of benefit to all consumers. Specific consumers in the sample received these services, presumably because the services were appropriate to their needs and goals. We believe that these should be looked at as potentially important services for consumers and counselors to consider, unless they are counter to the individual's specific vocational goal and individual needs related to that goal.

With the above cautions in mind, Exhibit 6-1 suggests a number of implications. First, having a good consumer/counselor relationship is important, and so is having an opportunity to change one's IPE during the course of services if such a change becomes appropriate. Especially important services (in terms of leading to employment) in the categories of education and employment development include participation in business or vocational training programs, job placement, supported employment, and on-the-job training. Receipt of independent living services contributes to achievement of an employment outcome, as does driver training/licensing and the provision of job-related materials such as tools, uniforms, equipment, and stock. Receipt of counseling for personal or psychosocial problems reduces the likelihood of an employment outcome, however, although it does not appear to reduce employment retention over time.

Achievement of Competitive Employment

The next set of outcomes we considered was achievement of competitive versus noncompetitive employment at closure and at one and two years after closure. We conducted these analyses for consumers who were working at each of those time points and looked at the relationship between services (the same list of services as described above) and the likelihood of being competitively employed. As Exhibit 6-2 depicts, we found significant relationships for a group of services similar to that found for any employment, above. (Odds ratios are shown in Appendix D, Tables D-4 to D-6.) That is, services found to be important for competitive employment that were also important for any employment included: the quality of the consumer/counselor relationship and preparation of an IPE amendment; employment-development services including job development, job placement, and on-the-job training. We note that within employment-development services, receipt of supported employment services reduced the likelihood of a competitive employment outcome. Postsecondary education services – business or vocational training and four-year college or university – were important for competitive employment. Among mobility-related and other support services, provision of tools, uniforms, and equipment contributed to competitive employment. We note that receipt of independent living services showed a negative relationship with competitive employment at

Exhibit 6-2. Services That Lead to Competitive Employment


Case Management Services and Relationship
Quality of the consumer/counselor relationship (1,2)* ↑
IPE amendment (c,2) ↑
+
Education and Employment Development Services
Job development (1,2) ↑
Job placement (c,1,2) ↑
Supported employment (c) ↓
On-the-job training (c,2) ↑
Business/vocational training (1) ↑
Four-year college/university (1) ↑
+
Mobility-Related and Other Support Services
Independent living services (c,1,2) ↓↑↑
Tools/uniforms/equipment/stock (c,1,2) ↑
+
Medical and Psychosocial Services
Medical services (c) ↓
+
Controlling for:
Disability type and significance
SSDI/SSI
Self-esteem
Working at application
Number of dependents
Non-white
=
Competitive Employment
Competitive employment at closure ↑
Competitive employment at one year post closure ↑
Competitive employment at two years post closure ↑

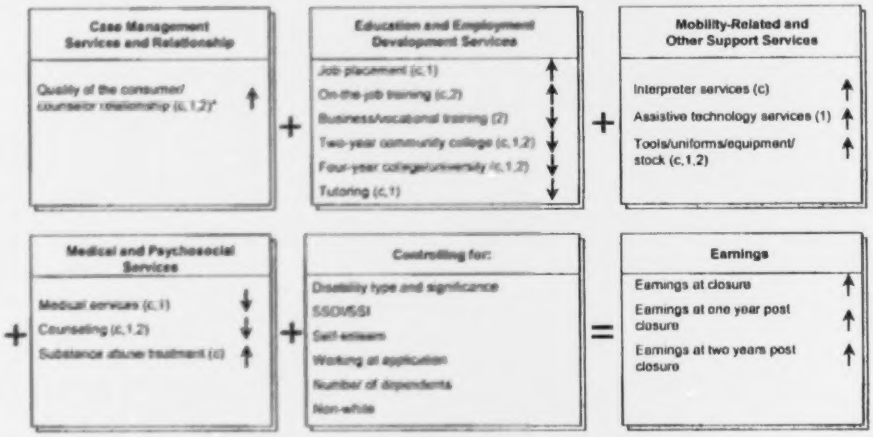
R^2 at closure = 0.34; one-year follow-up = 0.19; two-year follow-up = 0.23.
* Indicates time point(s) at which this is a significant predictor: closure (c), one-year follow-up (1), two-year follow-up (2).

closure, and a positive relationship at one and two years after VR exit. We interpret this finding to mean that individuals for whom independent living services were needed were less likely to be able to be employed initially in a competitive situation than in a noncompetitive one. We believe it is unlikely that receipt of independent living services was itself detrimental to the outcome. Receipt of medical services was negatively related to achievement of competitive employment at closure.

Earnings

The services that we found to be important for amount of earnings (at exit and one and two years after exit from VR services) are somewhat different from those reported for achievement of competitive employment. As shown in Exhibit 6-3, quality of the relationship between the consumer and counselor was significantly related to employment and to competitive employment, and also differentiated among earnings levels for those consumers who were working. Consumers who received employment-development services—job placement and on-the-job training—were likely to have higher earnings than other working consumers. However, enrollment in various forms of postsecondary education was associated with lower earnings at closure and subsequently, possibly because such consumers were entering first jobs or were younger. Receipt of medical services or counseling also was associated with lower earnings. The services that appear to be important for higher earnings include AT services, tools/uniforms/equipment/stock, interpreter services, and substance abuse treatment.

Exhibit 6-3. Services That Lead to Earnings Outcome


Case Management Services and Relationship
Quality of the consumer/counselor relationship (c,1,2)* ↑
+
Education and Employment Development Services
Job placement (c,1) ↑
On-the-job training (c,2) ↑
Business/vocational training (2) ↓
Two-year community college (c,1,2) ↓
Four-year college/university (c,1,2) ↓
Tutoring (c,1) ↓
+
Mobility-Related and Other Support Services
Interpreter services (c) ↑
Assistive technology services (1) ↑
Tools/uniforms/equipment/stock (c,1,2) ↑
+
Medical and Psychosocial Services
Medical services (c,1) ↓
Counseling (c,1,2) ↓
Substance abuse treatment (c) ↑
+
Controlling for:
Disability type and significance
SSDI/SSI
Self-esteem
Working at application
Number of dependents
Non-white
=
Earnings
Earnings at closure ↑
Earnings at one year post closure ↑
Earnings at two years post closure ↑

R^2 at closure = 0.12; one-year follow-up = 0.08; two-year follow-up = 0.07

* Indicates time point(s) at which this is a significant predictor: closure (c), one-year follow-up (1), two-year follow-up (2).

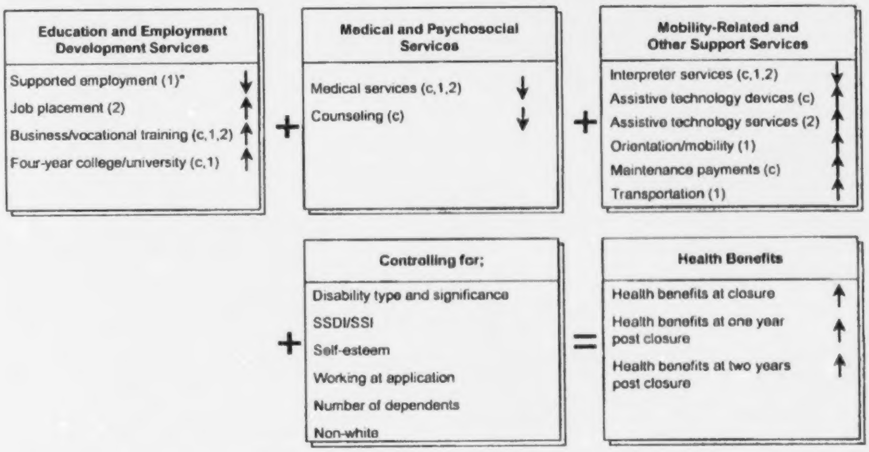
Health Benefits

We anticipated that similar groups of services would be important for both higher earnings and receipt of health benefits with employment. The model depicted in Exhibit 6-4 is, in fact, similar to that in Exhibit 6-3, with some exceptions. In addition to consumers who received supported employment services, those who received medical services and counseling services were also less likely than other working consumers to have employment that offered health benefits. Receipt of AT devices and services and enrollment in postsecondary education led to a higher likelihood of receiving health benefits, as did receipt of maintenance services, transportation, and orientation/mobility training. (Odds ratios are shown in Appendix D, Tables D-7 to D-9.)

In summary, our analyses found that a number of specific VR services appear to contribute to a consumer's likelihood to achieve an employment outcome and a competitive employment outcome. An important part of services leading to these outcomes is a relationship between the consumer and counselor that the consumer believes is productive and helpful, with flexibility to

BEST COPY AVAILABLE

Exhibit 6-4. Services That Lead to Receipt of Health Benefits with Employment


Education and Employment Development Services
Supported employment (1)* ↓
Job placement (2) ↑
Business/vocational training (c,1,2) ↑
Four-year college/university (c,1) ↑
+
Medical and Psychosocial Services
Medical services (c,1,2) ↓
Counseling (c) ↓
+
Mobility-Related and Other Support Services
Interpreter services (c,1,2) ↓
Assistive technology devices (c) ↑
Assistive technology services (2) ↑
Orientation/mobility (1) ↑
Maintenance payments (c) ↑
Transportation (1) ↑
+
Controlling for;
Disability type and significance
SSDI/SSI
Self-esteem
Working at application
Number of dependents
Non-white
=
Health Benefits
Health benefits at closure ↑
Health benefits at one year post closure ↑
Health benefits at two years post closure ↑

R^2 at closure = 0.19; one-year follow-up = 0.16; two-year follow-up = 0.21.
* Indicates time point(s) at which this is a significant predictor: closure (c), one-year follow-up (1), two-year follow-up (2).

amend the consumer's service plan as appropriate to facilitate achievement of the vocational goal. As preliminary findings from the study have indicated in the past, enrollment in postsecondary education, including business or vocational school, community college, and four-year college or university, is associated with achievement of competitive employment, which is likely to offer greater return in terms of benefits and career advancement potential (although not in earnings in the first few years), as noted in earlier sections of this chapter. Our models indicate the utility of these services, along with others, in leading to better employment-related outcomes. Also notable is the importance of mobility-related services, AT devices and services in particular, as a factor in achievement of employment, higher earnings, and jobs with health insurance benefits.

Short- and Longer-Term Noneconomic Outcomes of Participation in VR

In addition to outcomes related to employment and earnings over time, the study also collected data on other outcomes that may be expected to result from receipt of VR services. Among the outcomes reported in this chapter are receipt of services following exit from VR, community integration and independence, and consumers' overall perspectives on their VR services. Data on these outcomes came from annual interviews with VR consumers both during and following their VR services. For these analyses, we include individuals who were eligible

BEST COPY AVAILABLE

for and received VR services, separated into the following groups: persons who exited VR with a competitive employment outcome, persons who exited VR with a noncompetitive employment outcome, and persons who exited VR without an employment outcome following receipt of VR services.

Receipt of Services Following Exit from VR

At annual interviews at one, two, and three years following exit from VR, former consumers indicated whether or not they were receiving services at the time of the interview. Potential services they might be receiving included medical treatment, counseling, independent living services, personal assistance services, transportation, AT devices or services, job coaching, or education. Table 6-16 reports the findings regarding ongoing receipt of services. In comparison with consumers in competitive employment, more persons exiting VR into noncompetitive employment or exiting without having achieved an employment outcome reported receipt of services. This finding was consistent for each group for each of the three time points. For example, one year after VR exit, 8 percent of persons with a competitive job were receiving some type of services, compared with 25 percent of former consumers in noncompetitive jobs and 18 percent of persons without an employment outcome. By the end of the third year, 7 percent of competitively employed persons were receiving services, compared with 24 percent of persons exiting into noncompetitive jobs and 16 percent of those exiting VR without an employment outcome. In sum, persons who exited VR into competitive employment had significantly less need for ongoing services in the first several years following their VR participation than did persons who exited into noncompetitive jobs or without an employment outcome after having received VR services—a finding that suggests the desirability of competitive employment outcomes in comparison with other outcomes of VR services.

Table 6-16 also reports types of services that former consumers received after their exit from VR. These findings are for all consumers in each group rather than only for consumers in each group who reported receipt of any services at each of the time points. Eighteen percent of persons exiting into noncompetitive employment used transportation services, a percentage that did not vary much over the three-year period. Persons exiting without an employment outcome also used this service more frequently than did those exiting into competitive jobs (9 versus 2 percent at first follow up and 9 versus 3 percent by third followup). Other services

Table 6-16. Receipt of Services Following Exit from VR, Among Persons Who Received Services

Type of service	Percentage Persons exiting VR with a competitive employment outcome	Persons exiting VR with a noncompetitive employment outcome	Persons exiting VR without an employment outcome after services
Received any services			
One year after exit	7.6	25.1*	18.0*
Two years after exit	8.5	22.5*	17.1*
Three years after exit	7.4	23.5*	16.4*
Percentage of all consumers in group			
Counseling			
One year after exit	5.4	13.2*	13.9*
Two years after exit	6.2	10.2	11.4*
Three years after exit	5.2	9.2	10.7*
Medical treatment			
One year after exit	3.9	12.8*	10.7*
Two years after exit	3.2	10.0*	7.9*
Three years after exit	2.8	9.8*	8.0*
Independent living			
One year after exit	1.1	4.7*	2.4*
Two years after exit	0.8	3.8*	1.1
Three years after exit	0.3	5.2*	1.4
Personal assistance			
One year after exit	0.5	3.9*	2.2*
Two years after exit	0.6	3.8*	0.9
Three years after exit	0.4	3.7*	1.1
Transportation			
One year after exit	2.3	17.8*	8.5*
Two years after exit	3.8	16.7*	7.4*
Three years after exit	3.0	17.4*	9.1*
Assistive technology devices or services			
One year after exit	0.6	2.4*	2.4*
Two years after exit	0.5	2.6*	1.3
Three years after exit	0.7	2.5	2.1
Job coaching			
One year after exit	1.4	10.5*	1.6
Two years after exit	0.9	9.2*	1.9
Three years after exit	1.0	7.1*	1.2
Education			
One year after exit	0.7	3.5*	2.8*
Two years after exit	0.7	2.1	1.7*
Three years after exit	0.7	0.6	1.4

* Indicates a significant difference from persons with a competitive employment outcome ($p < .05$).

that persons exiting into noncompetitive employment and those exiting without an employment outcome received more frequently than persons with competitive jobs included counseling (13 and 14 percent versus 5 percent at first follow up) and medical treatment (13 and 11 percent versus 4 percent at first follow up). Persons in noncompetitive jobs more often received job coaching (11 versus 1 percent at first follow up), although the percentage using this service declined from 11 to 7 percent by the end of the third year.

As these data suggest, a relatively small percentage of former consumers were receiving various services in the first few years after VR exit. For each of the three groups, the percentages remained relatively stable over time in terms of receipt of any services—between 7 and 9 percent for persons who exited into a competitive job, about one-quarter of those exiting into noncompetitive employment, and under 20 percent among those exiting without an employment outcome. In general, use of any one service tended to decline slightly over time, with the exception of such services as transportation, where for persons using this service, the need for it remained relatively stable.

Community Integration and Independence

Table 6-17 reports consumers' perspectives at exit from VR and at three annual follow-up interviews regarding the extent to which they believed that their disability restricted their ability to participate fully in social and community activities and constrained their ability to reach their full potential. As shown, at study entry fewer persons who later exited into competitive employment reported that their disability restricted their activities than did persons who exited into noncompetitive employment or those who exited VR services without an employment outcome (32 percent versus 42 and 43 percent). Further, persons exiting into competitive employment reported that these restrictions became less of a problem over time: by the end of the third year, only 22 percent reported that their disability restricted their participation in social or community activities. The other two groups reported only slight change over time on this dimension, however. In terms of reaching potential, over half of persons later exiting into competitive or noncompetitive employment reported this challenge at study entry (57 percent for persons who exited into competitive employment, 56 percent for persons who exited into noncompetitive employment); significantly more persons exiting without an employment outcome reported this issue (71 percent). Again, by the end of the third

Table 6-17. Self-Reported Measures of Community Integration at Entry to VR and Following Exit from VR, Among Persons Who Received Services

	Percentage		
	Persons exiting VR with a competitive employment outcome	Persons exiting VR with a noncompetitive employment outcome	Persons exiting VR without an employment outcome after services
Disability restricts social and community activities			
At study entry	31.5**	42.4*	42.8*
One year after exit	24.6	43.6*	42.0*
Two years after exit	21.6	40.8*	37.2*
Three years after exit	21.5	36.8*	38.2*
Disability or health problems prevent reaching full potential			
At study entry	56.7**	56.4**	70.7*
One year after exit	47.2	58.9*	66.0*
Two years after exit	42.2	56.7*	61.0*
Three years after exit	41.8	50.6*	58.9*

* Indicates a significant difference from persons with a competitive employment outcome (p <.05).

** Indicates a significant difference from entry to third follow up.

year, persons who exited into competitive employment reported this issue significantly less frequently, with a change from 57 to 42 percent of the group reporting this issue, as did persons exiting into noncompetitive employment, with a change from 56 to 51 percent. Fewer persons without an employment outcome after services reported the problem over time (not significant).

Table 6-18 contains comparable data for persons with a competitive or noncompetitive employment outcome who reported that they were not working in the annual follow-up interview. As shown, one-third of those who exited into competitive employment, and one-half of those exiting into noncompetitive employment but who were not working at follow up, reported at study entry that their disability restricted their social and community activities. These percentages declined over time for those not working at follow up whose employment outcome was competitive, to 23 percent of those not working three years later; but the percentages remained about the same for persons whose employment outcome had been noncompetitive. Perspectives of these groups regarding whether their disability or health problems prevented them from reaching their full potential are also reported in the table. As shown, nearly 60 percent of both groups had agreed with this view at study entry; percentages declined slightly over time, to 50 percent of those whose employment outcome had been competitive and 52 percent of those whose employment outcome had been noncompetitive.

Table 6-19 reports consumers' responses at VR exit to a number of more detailed questions regarding the influence of VR services on selected aspects of community integration, independence, self-advocacy, and other factors with which VR might be expected to help consumers. Among the issues addressed in this interview were:

P community and social participation (e.g., feeling more comfortable in public places, feeling more comfortable socially and in developing friendships);

P independence (e.g., more effective management of personal and financial affairs, greater ability to state needs and feelings clearly, gains in goal setting and planning); and

P self-advocacy (e.g., standing up for one's rights, feeling more self-confident).

Table 6-18. Self-reported Measures of Community Integration at Entry to VR and Following Exit, Among Persons Who Exited VR with an Employment Outcome but Were Not Working at Follow-up, by Type of Employment Outcome

	Percentage	
	Persons exiting VR with a competitive employment outcome	**Persons exiting VR with a noncompetitive employment outcome**
Disability restricts social and community activities		
At study entry	32.3	50.0
One year after exit	29.5	46.7
Two years after exit	26.9	48.7
Three years after exit	22.8	--
Disability or health problems prevent reaching full potential		
At study entry	58.3	59.5
One year after exit	54.5	65.3
Two years after exit	49.0	58.3
Three years after exit	50.4	52.1

-- Cell sizes insufficient to report.

For these items, respondents indicated whether they needed assistance from VR and, if they did need assistance, how helpful VR had been in terms of helping them make positive changes. Response options were as follows: VR helped a great deal, VR helped somewhat, VR did not help at all. Percentages reported in the table apply to persons in each group who reported that they did need help in the area.

Table 6-19. Self-Reported Measures of Increased Integration and Independence Following Exit From VR, Among Persons Who Received VR Services

Type of change	Percentage: Persons exiting VR with a competitive employment outcome	Percentage: Persons exiting VR with a noncompetitive employment outcome	Percentage: Persons exiting VR without an employment outcome after services
Gain in self-confidence			
Did not need assistance	15.5	14.6	14.4*
VR helped a great deal	48.7	45.4	26.7*
VR helped somewhat	38.9	41.3	43.3
VR did not help at all	12.5	13.3	30.0*
Total	100.0	100.0	100.0
Gain in coping with disability			
Did not need assistance	12.3	7.1*	9.5*
VR helped a great deal	46.7	49.8	23.2*
VR helped somewhat	37.7	35.3	40.9
VR did not help at all	15.6	14.9	35.9*
Total	100.0	100.0	100.0
Gain in feeling comfortable in public			
Did not need assistance	29.5	24.9*	22.1*
VR helped a great deal	41.9	39.2	20.9*
VR helped somewhat	36.7	37.0	37.4
VR did not help at all	21.4	23.9	41.7*
Total	100.0	100.0	100.0
Gain in feeling comfortable socially			
Did not need assistance	30.7	27.6	21.5*
VR helped a great deal	37.5	38.2	17.4*
VR helped somewhat	38.7	33.4	41.3
VR did not help at all	23.8	28.4	41.3*
Total	100.0	100.0	100.0
Gain in developing more friendships			
Did not need assistance	34.2	34.1	23.6*
VR helped a great deal	32.8	29.5	18.1*
VR helped somewhat	37.1	33.1	30.8*
VR did not help at all	30.1	37.4	51.2*
Total	100.0	100.0	100.0
Gain in stating needs and feelings clearly			
Did not need assistance	17.5	24.1	11.7*
VR helped a great deal	41.8	35.3	23.0*
VR helped somewhat	42.5	42.2	44.0
VR did not help at all	15.7	22.4	33.0*
Total	100.0	100.0	100.0
Gain in standing up for rights			
Did not need assistance	25.5	26.6	16.4*
VR helped a great deal	41.0	30.0*	26.1*
VR helped somewhat	37.9	42.0	35.0
VR did not help at all	21.2	28.0	38.9*
Total	100.0	100.0	100.0
Gain in learning how to develop goals and plans for their achievement			
Did not need assistance	16.8	18.4	11.0*
VR helped a great deal	40.2	32.6	25.2*
VR helped somewhat	42.7	41.3	41.1
VR did not help at all	17.1	26.1*	33.8*
Total	100.0	100.0	100.0
Gain in effective management of personal and financial affairs			
Did not need assistance	32.2	21.9*	21.4*
VR helped a great deal	31.8	33.3	14.5*
VR helped somewhat	33.6	34.5	28.9
VR did not help at all	34.5	32.2	56.5*
Total	100.0	100.0	100.0

* Indicates a significant difference from persons with a competitive employment outcome ($p < .05$).

BEST COPY AVAILABLE

As shown in Table 6-19, for all of the nine factors, consumers who exited following services without an employment outcome reported a greater need for help from VR than did persons who exited into competitive employment. For all nine, they more often reported that VR was not at all helpful than did persons who exited into competitive employment. Thus they were consistently less pleased with the assistance they received from VR in terms of these noneconomic outcomes. Conversely, on many of the factors, persons exiting into competitive employment and those exiting into noncompetitive employment had similar perspectives. For example, about the same percentage of both groups reported that VR either helped them a great deal (49 and 45 percent, respectively) or somewhat (39 and 41 percent) in gaining self-confidence. Similarly, among persons reporting that they needed help in coping with disability, about the same percentage of these two groups reported that VR helped a great deal (47 and 50 percent) or somewhat (38 and 35 percent). For both of these factors, more than twice as many persons exiting without an employment outcome reported that VR did not help them at all. For self-confidence, 13 percent of each group exiting into employment reported that VR was not at all helpful, compared with 30 percent of those without an employment outcome. Comparable figures on coping with disability were 16 and 15 percent versus 36 percent.

Overall Perspective on the VR Experience

In addition to a number specific questions regarding consumers' perspectives on their VR experience,[5] consumers who received VR services offered their overall perspective on VR through responses to items about whether they would, should the opportunity arise, want to obtain the same or different rehabilitation services. Table 6-20[71] reports these findings, for the three groups of consumers who received services (i.e., those exiting into competitive employment, those exiting into noncompetitive employment, and those exiting without an employment outcome). The interview occurred at or shortly after their exit from VR services. As shown in the table, nearly two-thirds of persons exiting into competitive jobs responded that if they had to pay for services, they would purchase "exactly the same" services they received from the VR program. Twenty-seven percent would purchase better or different services, while 9 percent would spend the money on something other than rehabilitation services. Figures for persons entering noncompetitive employment were slightly, but nonsignificantly, different, with a

---

[5] A detailed analysis of these data will be the focus of a research brief, anticipated for summer 2002.

Table 6-20. Overall Perspectives on VR Services, Among Persons Who Received Services

	Percentage		
Perspective	**Persons exiting VR with a competitive employment outcome**	**Persons exiting VR with a noncompetitive employment outcome**	**Persons exiting VR without an employment outcome after services**
If I had to pay for it, I'd buy exactly the same rehabilitation services that I received from the VR program.	63.9	71.1	41.5*
If I had the money to buy my own rehabilitation services, I'd try to buy better or different services from the ones I received through the VR program.	27.0	22.2	44.2*
If I had the money, I wouldn't have spent it on rehabilitation services at all; I would have used it for other things I needed.	9.1	6.8	14.2*
Total	100.0	100.0	100.0

* Indicates a significant difference from persons with a competitive employment outcome ($p < .05$).

slightly higher percentage (71 percent) indicating that they would buy exactly the same services that they received from the VR program. Conversely, persons who exited services without an employment outcome were distinctly less positive about their VR experience. Only 42 percent reported that they would buy the same services; slightly more than that reported that they would buy different or better services from the ones VR provided (44 percent), and more consumers than those exiting into competitive jobs indicated they would buy something other than rehabilitation services (14 versus 9 percent). These findings parallel those from earlier reports (e.g., Hayward, Interim Report 2, 1996) in that persons who exit services with an employment outcome, whether competitive or noncompetitive, have considerably more positive perspectives regarding most aspects of their VR experience than do persons who are not successful in achieving an employment outcome. Additional analyses planned for subsequent reports may help to reveal the extent to which motivation, service quality, or other factors may play a part in these perspectives.

References

Hayward, B. (1998). A Longitudinal Study of the Vocational Rehabilitation Service Program. Third Interim Report: Characteristics and Outcomes of Former VR Consumers with an Employment Outcome. Research Triangle Park, NC: Research Triangle Institute.

Hayward, B. & Schmidt-Davis, H. (2000). A Longitudinal Study of the Vocational Rehabilitation Service Program. Fourth Interim Report: Characteristics and Outcomes of Transitional Youth in VR. Research Triangle Park, NC: Research Triangle Institute.

Hayward, B. & Tashjian, M. (1995). A Longitudinal Study of the Vocational Rehabilitation Service Program. First Interim Report. Research Triangle Park, NC: Research Triangle Institute.

Hayward, B. & Tashjian, M. (1996). A Longitudinal Study of the Vocational Rehabilitation Service Program. Second Interim Report: Characteristics and Perspectives of VR Consumers. Research Triangle Park, NC: Research Triangle Institute.

Hayward, B.J., et al. (1991). Evaluation of Vocational Assessment Procedures and the IWRP Process Used by State VR Agencies: Data Analysis Report. Research Triangle Park, NC: Research Triangle Institute.

APPENDIX A

OVERVIEW OF THE VR PROGRAM

The state-federal VR program has served persons with disabilities since its inception in 1920, when Congress passed the Smith-Fess Act (P.L. 66-236) to provide rehabilitation services to World War I veterans with physical disabilities. The program's authorization, in the Rehabilitation Act of 1973 (P.L. 93-113, as amended), assigns responsibility for program administration to the Rehabilitation Services Administration (RSA) in the U.S. Department of Education. The goal of VR services funded under Title I of the Act is:

> *. . .to assist States in operating a comprehensive, coordinated, effective, efficient, and accountable program of vocational rehabilitation that is designed to assess, plan, develop, and provide vocational rehabilitation services for individuals with disabilities, consistent with their strengths, resources, priorities, concerns, abilities, and capabilities so that such individuals may prepare for and engage in gainful employment (1992 Amendments to the Rehabilitation Act, Sec. 100 (a) (2)).*

Over the VR program's 80-year history, Congress has periodically expanded VR's focus in a number of ways. The Barton La-Follette Amendments of 1954 specified that the program extend services to individuals with mental retardation or mental illness. At present, state VR agencies provide services to individuals with the full range of physical, sensory, or cognitive disabilities. The Rehabilitation Act of 1973 mandated that VR agencies (1) place priority on meeting the needs of persons with significant disabilities, and (2) ensure that program consumers have maximum involvement in planning and implementing their rehabilitation programs. Other recent changes have expanded the program's focus beyond time-limited, employment-related services leading to competitive employment. For example, current emphases include supported employment and post-closure services to assist consumers who have achieved an employment outcome to maintain their employment. The 1992 Amendments contained significant changes in the purposes of Title I, changed the eligibility determination process, called for VR agencies to target services to persons with the most significant disabilities, established a requirement for implementing program evaluation standards and performance indicators, and made numerous modifications whose general focus was to increase the program's responsiveness to the preferences of individuals with disabilities and their families. Finally, in 1998 Congress incorporated the Rehabilitation Act into the Workforce

Investment Act (P.L. 105-220) as part of a broad movement to improve coordination among the nation's employment training programs.

VR services are administered by state VR agencies within guidelines established by the Act and associated regulations found at 34 CFR Part 361, supplemented by other policy and programmatic guidelines. RSA is responsible for national administrative direction, policy guidance, and evaluation of state VR agencies, while the state agencies are responsible for activities associated with determination of eligibility for services and subsequent development and implementation of individualized service plans (called Individualized Plans for Employment, or IPEs) that will help consumers achieve their vocational goals. Among the specific activities that RSA is authorized to undertake in fulfilling its administrative responsibilities for the program are monitoring, technical assistance, research, and evaluation.

Within the framework of federal statute and regulations, state VR agencies establish policies and procedures to govern the VR program according to the characteristics of states and the agencies themselves. These can include specification of procedures to be followed by rehabilitation counselors in determining and documenting eligibility and in working with consumers to develop and implement IPEs, including selecting and arranging or purchasing services for consumers. Examples of the types of standards and procedures that state VR agencies have implemented to ensure the quality and effectiveness of VR services include the following:

- counselor performance standards (e.g., number employment outcomes, time-in-status limits);
- case review systems; and
- timelines for counselor contacts with consumers.

The state-federal VR program is funded approximately 78 percent by the federal government, with a minimum 22 percent supplied by each state. Currently, 82 state VR agencies in the United States, District of Columbia, Puerto Rico, and territories administer services to individuals, with 26 states operating both a "blind services" program for persons with visual disabilities and a "general" program for individuals with all other disabilities. The remainder operate a "combined" program serving all persons with disabilities.

The organizational location of the rehabilitation agency (or agencies) in a state varies. In about half of the states, VR is located in an umbrella human services agency. Other locations include state education agencies and departments of labor. In part as a reflection of organizational changes resulting from enactment of the Workforce Investment Act (WIA), consolidation of VR agencies with state-level entities responsible for employment training (e.g., workforce development departments) has recently occurred in many states.

Within the constraints of these changes, most states administer and deliver VR services through a trilevel structure. The "central office," or administrative offices of the director and other management staff, is usually located in the state capital. The state is then divided into regions, or districts, with an office housing both regional staff and service delivery personnel (rehabilitation counselors, vocational evaluators, placement specialists). The third level is local, or field, offices, which house service delivery staff and office administrators. Thus persons with disabilities receive VR services (meet with counselors) at both district and local offices.

States vary greatly in the numbers of regional and local offices, depending on geographic size, relative population density, and other factors. A state like North Carolina, for example, with an annual caseload of about 37,000 in the general agency, has four regional and 30 local offices. California, with a caseload of over 82,000 (FY 1989), has 19 regional offices, each of which typically serves between three and five local offices. (Given ongoing changes from state to state in organizational structure, these numbers should be viewed as illustrations of the variety among states rather than as accurate descriptions of the current structure of the states.) This structure permits supervisory, training, special services (e.g., rehabilitation engineering), and technical assistance support to be located closer to counselors and consumers throughout the state than would be possible with a two-level structure and also permits housing of service delivery staff in relatively close proximity to consumers through the system of local, or field, offices.

APPENDIX B

TABLES ON RELATIONSHIPS BETWEEN VR SERVICES AND DISABILITY TYPE

Table B-1. Analysis of Relationships Between VR Services and Type of Disability: Subset 1

Service	Coefficient	Disability type	Mean
Independent living services	0.77	Vision impairment	2.70
Assistive technology devices	0.76	Hearing impairment	0.47
Orientation/mobility therapy	0.61	Orthopedic, amputation	-0.15
Interpretation services	0.13	Traumatic brain injury	-0.23
Transportation	0.02	Nonorthopedic physical disability	-0.26
Tools/uniforms/equipment/stock	0.02	All other conditions	-0.32
Maintenance	0.00	Substance abuse	-0.32
Medical services	-0.01	Learning disability	-0.34
Counseling	-0.01	Mental illness	-0.38
Four-year college/university	-0.02	Mental retardation	-0.38
IPE amendment	-0.05		
Business/vocational training	-0.06		
Supported employment	-0.07		
Work adjustment	-0.07		
Two-year community college	-0.07		
Substance abuse treatment	-0.07		
Job development	-0.09		
Job search training	-0.09		
Job placement	-0.09		
Vehicle maintenance/repair	-0.09		
Personal assistance services	-0.11		
Psychological/psychiatric treatment	-0.12		
Physical therapy	-0.12		
Assistive technology services	-0.12		
On-the-job training/job trial	-0.13		
Tutoring	-0.25		
Driver training/licensing	-0.27		

Table B-2. Analysis of Relationships Between VR Services and Type of Disability: Subset 2

Service	Coefficient	Disability type	Mean
Supported employment	0.88	Mental retardation	0.85
Orientation/mobility therapy	0.80	Vision impairment	0.25
Independent living services	0.75	All other conditions	0.25
Work adjustment	0.46	Traumatic brain injury	0.23
On-the-job training	0.38	Mental illness	0.14
Job development	0.29	Learning disability	0.09
Job placement	0.16	Substance abuse	-0.12
Psychological/psychiatric treatment	0.15	Nonorthopedic physical impairment	-0.14
Driver training/licensing	0.13	Orthopedic, amputation	-0.24
Tutoring	0.09	Hearing impairment	-0.53
Substance abuse treatment	0.03		
Maintenance	0.01		
Counseling	-0.01		
Vehicle maintenance/repair	-0.01		
Personal assistance services	-0.01		
Transportation	-0.03		
Medical services	-0.04		
Tools/uniforms/equipment/stock	-0.05		
Four-year college/university	-0.05		
Business/vocational training	-0.07		
Two-year community college	-0.07		
IPE amendment	-0.08		
Assistive technology devices	-0.20		
Assistive technology services	-0.25		
Job search training	-0.28		
Physical therapy	-0.45		
Interpretation services	-0.55		

Table B-3. Analysis of Relationships Between VR Services and Type of Disability: Subset 3

Service	Coefficient	Disability type	Mean
Orientation/mobility therapy	0.96	Vision impairment	0.23
Independent living services	0.85	Orthopedic, amputation	0.20
Physical therapy	0.41	Substance abuse	0.20
Substance abuse treatment	0.39	Nonorthopedic physical impairment	0.15
Driver training/licensing	0.23	Mental illness	0.06
Tools/uniforms/equipment/stock	0.17	Learning disability	0.00
Vehicle maintenance/repair	0.13	All other conditions	-0.11
Two-year community college	0.13	Traumatic brain injury	-0.13
IPE amendment	0.12	Mental retardation	-0.37
Business/vocational training	0.10	Hearing impairment	-0.91
Medical services	0.08		
Psychological/psychiatric treatment	0.06		
Maintenance	0.06		
Four-year college/university	0.05		
Counseling	0.05		
Personal assistance services	0.04		
Transportation	-0.03		
Tutoring	-0.03		
Job development	-0.09		
Job placement	-0.12		
Job search training	-0.19		
Work adjustment	-0.22		
On-the-job training	-0.23		
Assistive technology services	-0.24		
Assistive technology devices	-0.25		
Supported employment	-0.32		
Interpretation services	-1.14		

Table B-4. Analysis of Relationships Between VR Services and Type of Disability: Subset 4

Service	Coefficient	Disability type	Mean
Substance abuse treatment	1.50	Substance abuse	0.40
Psychological/psychiatric treatment	0.85	Mental illness	0.33
Orientation/mobility therapy	0.23	Hearing impairment	0.06
Job search training	0.19	Vision impairment	0.04
Transportation	0.13	All other conditions	0.03
Interpretation services	0.13	Learning disability	-0.05
Independent living services	0.09	Traumatic brain injury	-0.06
Business/vocational training	0.08	Nonorthopedic physical impairment	-0.09
Vehicle maintenance/repair	0.08	Orthopedic, amputation	-0.21
Counseling	0.03	Mental retardation	-0.26
Four-year college/university	0.02		
Tools/uniforms/equipment/stock	0.02		
Two-year community college	0.00		
Maintenance	0.00		
Assistive technology devices	-0.03		
Personal assistance services	-0.04		
On-the-job training	-0.05		
Work adjustment	-0.07		
Medical services	-0.07		
Job placement	-0.13		
Assistive technology services	-0.15		
Job development	-0.18		
Supported employment	-0.22		
IPE amendment	-0.26		
Tutoring	-0.46		
Driver training/licensing	-0.62		
Physical therapy	-0.99		

Table B-5. Analysis of Relationships Between VR Services and Type of Disability: Subset 5

Service	Coefficient	Disability type	Mean
Psychological/psychiatric treatment	0.65	Mental illness	0.20
Driver training/licensing	0.38	Traumatic brain injury	0.17
Job placement	0.28	Nonorthopedic physical impairment	0.08
Tutoring	0.17	Vision impairment	0.01
Counseling	0.12	Hearing impairment	0.00
Business/vocational training	0.11	Orthopedic, amputation	0.00
Four-year college/university	0.09	Learning disability	-0.01
Medical services	0.04	Mental retardation	-0.13
Personal assistance services	0.04	All other conditions	-0.13
Assistive technology devices	0.03	Substance abuse	-0.74
Two-year community college	0.02		
Work adjustment	0.02		
Supported employment	0.02		
Maintenance	0.01		
Transportation	0.01		
Independent living services	0.01		
Orientation/mobility therapy	-0.01		
Interpretation services	-0.02		
Job development	-0.03		
On-the-job training	-0.05		
IPE amendment	-0.05		
Assistive technology services	-0.09		
Job search training	-0.10		
Physical therapy	-0.12		
Tools/uniforms/equipment/stock	-0.13		
Vehicle maintenance/repair	-0.24		
Substance abuse treatment	-3.43		

Table B-6. Analysis of Relationships Between VR Services and Type of Disability: Subset 6

Service	Coefficient	Disability type	Mean
Physical therapy	1.77	Traumatic brain injury	0.26
Driver training/licensing	0.58	Orthopedic, amputation	0.13
Psychological/psychiatric treatment	0.46	All other conditions	0.06
Assistive technology services	0.25	Mental illness	0.06
On-the-job training	0.22	Mental retardation	0.01
Vehicle maintenance/repair	0.17	Hearing impairment	0.00
Supported employment	0.17	Vision impairment	-0.02
Tools/uniforms/equipment/stock	0.16	Substance abuse	-0.02
IPE amendment	0.16	Learning disability	-0.10
Assistive technology devices	0.15	Nonorthopedic physical impairment	-0.38
Substance abuse treatment	0.13		
Job development	0.13		
Personal assistance services	0.09		
Two-year community college	0.07		
Transportation	0.06		
Business/vocational training	0.05		
Counseling	-0.01		
Maintenance	-0.02		
Work adjustment	-0.03		
Interpretation services	-0.03		
Job placement	-0.14		
Four-year college/university	-0.16		
Medical services	-0.21		
Tutoring	-0.21		
Job search training	-0.23		
Independent living services	-0.28		
Orientation/mobility therapy	-0.34		

Table B-7. Analysis of Relationships Between VR Services and Type of Disability: Subset 7

Service	Coefficient	Disability type	Mean
Substance abuse treatment	0.94	Traumatic brain injury	0.10
Supported employment	0.58	Nonorthopedic physical impairment	0.09
Psychological/psychiatric treatment	0.27	Mental retardation	0.06
Driver training/licensing	0.27	Substance abuse	0.03
Medical services	0.20	Mental illness	0.02
Interpretation services	0.18	Orthopedic, amputation	0.02
Physical therapy	0.18	Hearing impairment	0.01
Counseling	0.16	Vision impairment	-0.01
Assistive technology devices	0.16	All other conditions	-0.07
Job development	0.12	Learning disability	-0.37
Personal assistance services	0.12		
Job search training	0.08		
Transportation	0.08		
Maintenance	0.05		
Tools/uniforms/equipment/stock	0.04		
IPE amendment	0.01		
Assistive technology services	-0.05		
Business/vocational training	-0.08		
Four-year college/university	-0.12		
Two-year community college	-0.18		
Work adjustment	-0.18		
Vehicle maintenance/repair	-0.20		
Orientation/mobility therapy	-0.31		
Independent living services	-0.41		
On-the-job training	-0.42		
Job placement	-0.55		
Tutoring	-0.69		

APPENDIX C

TABLES ON RELATIONSHIPS BETWEEN VR SERVICES AND VOCATIONAL GOAL

Table C-1. Analysis of Relationships Between VR Services and Vocational Goal: Subset 1

Service	Coefficient	Vocational Goal	Mean
Job placement	1.08	Benchwork	0.36
Substance abuse treatment	0.95	Professional/managerial/technology	0.01
Interpretation services	0.64	Structural work	-0.02
Independent living services	0.61	Clerical/sales	-0.04
IPE amendment	0.52	Service	-0.11
Assistive technology services	0.26		
Supported employment	0.13		
Two-year community college	0.10		
Assistive technology devices	0.06		
Maintenance	0.03		
Tools/uniform/equipment/stock	0.02		
Medical services	0.01		
Counseling	0.01		
Transport	0.00		
Business/vocational training	0.00		
Personal assistance services	-0.01		
Work adjustment	-0.01		
Four-year college/university	-0.01		
Vehicle maintenance/repair	-0.03		
Psychological/psychiatric treatment	-0.13		
Job development	-0.22		
Orientation/mobility therapy	-0.45		
Tutoring	-0.56		
Job search training	-0.57		
Physical therapy	-0.57		
Driver training/licensing	-0.64		
On-the-job training	-0.65		

BEST COPY AVAILABLE

Table C-2. Analysis of Relationships Between VR Services and Vocational Goal: Subset 2

Service	Coefficient	Vocational Goal	Mean
Substance abuse treatment	1.20	Benchwork	0.12
Assistive technology services	1.09	Service	0.12
Driver training/licensing	1.05	Clerical/sales	0.04
Job search training	0.87	Professional/managerial/technology	-0.10
On-the-job training	0.36	Structural work	-0.18
Physical therapy	0.36		
Interpretation services	0.30		
Independent living services	0.24		
Tutoring	0.18		
Transport	0.16		
Business/vocational training	0.16		
Two-year community college	0.11		
Personal assistance services	0.02		
Supported employment	0.02		
Tools/uniform/equipment/stock	0.00		
Psychological/psychiatric treatment	0.00		
Four-year college/university	-0.02		
Medical services	-0.04		
Assistive technology devices	-0.06		
Maintenance	-0.09		
Job placement	-0.10		
Job development	-0.10		
IPE amendment	-0.13		
Counseling	-0.14		
Vehicle maintenance/repair	-0.22		
Orientation/mobility therapy	-0.23		
Work adjustment	-0.60		

APPENDIX D

TABLES OF ODDS RATIOS

Table D-1. Odds Ratios Predicting *Employment Outcome* at Closure ($R^2 = .23$)

Variables	*Employment outcome* odds ratios
Case Management Services and Relationship	
Quality of the consumer/counselor relationship	1.722
IPE amendment	1.227
Education and Employment Development Services	
Job placement	2.355
Supported employment	1.437
On-the-job training	1.865
Mobility-Related and Other Support Services	
Independent living services	3.566
Driver training/licensing	2.319
Tools/uniforms/equipment/stock	1.354
Medical and Psychosocial Services	
Counseling	0.893
Covariates	
Vision	2.311
Hearing impairment	2.502
Nonorthopedic physical	0.956
Mental illness	1.012
Mental retardation	1.864
Substance abuse	1.209
Learning disability	0.803
Traumatic brain injury	0.705
Other	3.091
Significance	0.844
SSI/SSDI	0.510
Self-esteem	1.535
Working at application	2.191
Number of dependents	1.063
Non-white	0.693

Table D-2. Odds Ratios Predicting *Employment Outcome* at One-Year Follow-Up ($R^2 = .16$)

Variables	*Employment outcome* odds ratios
Case Management Services and Relationship	
Quality of the consumer/counselor relationship	1.350
IPE amendment	1.125
Education and Employment Development Services	
Business/vocational training	1.140
Mobility-Related and Other Support Services	
Independent living services	2.442
Tools/uniforms/equipment/stock	1.144
Covariates	
Vision	1.286
Hearing impairment	1.416
Nonorthopedic physical	0.757
Mental illness	1.043
Mental retardation	2.069
Substance abuse	1.515
Learning disability	1.582
Traumatic brain injury	0.569
Other	2.031
Significance	0.823
SSI/SSDI	0.490
Self-esteem	1.641
Working at application	2.143
Number of dependents	1.051
Non-white	0.808

Table D-3. Odds Ratios Predicting *Employment Outcome* at Two-Year Follow-Up ($R^2 = .18$)

Variables	*Employment outcome odds ratios*
Case Management Services and Relationship	
Quality of the consumer/counselor relationship	1.286
IPE amendment	1.168
Education and Employment Development Services	
Job placement	1.441
On-the-job training	1.700
Mobility-Related and Other Support Services	
Independent living services	2.810
Covariates	
Vision	0.677
Hearing impairment	1.433
Nonorthopedic physical	0.791
Mental illness	1.147
Mental retardation	2.308
Substance abuse	1.907
Learning disability	2.585
Traumatic brain injury	0.783
Other	6.283
Significance	0.596
SSI/SSDI	0.567
Self-esteem	2.282
Working at application	2.077
Number of dependents	1.060
Non-white	0.708

Table D-4. Odds Ratios Predicting *Competitive Employment* at Closure ($R^2 = .34$)

Variables	*Competitive employment odds ratios*
Case Management Services and Relationship	
IPE amendment	1.265
Education and Employment Development Services	
Job placement	1.461
Supported employment	0.551
On-the-job training	1.662
Mobility-Related and Other Support Services	
Independent living services	0.510
Tools/uniforms/equipment/stock	1.363
Medical and Psychosocial Services	
Medical services	0.948
Covariates	
Vision	0.125
Hearing impairment	1.366
Nonorthopedic physical	1.119
Mental illness	0.992
Mental retardation	0.474
Substance abuse	1.561
Learning disability	1.419
Traumatic brain injury	1.753
Other	1.639
Significance	0.635
SSI/SSDI	0.564
Self-esteem	0.781
Working at application	1.761
Number of dependents	1.197
Non-white	1.015

Table D-5. Odds Ratios Predicting *Competitive Employment* at One-Year Follow-Up ($R^2 = .19$)

Variables	*Competitive employment* odds ratios
Case Management Services and Relationship	
Quality of the consumer/counselor relationship	1.334
Education and Employment Development Services	
Job development	1.241
Job placement	1.518
Business/vocational training	1.152
Four-year college/university	1.136
Mobility-Related and Other Support Services	
Independent living services	1.547
Tools/uniforms/equipment/stock	1.149
Covariates	
Vision	1.321
Hearing impairment	1.218
Nonorthopedic physical	0.790
Mental illness	1.007
Mental retardation	0.821
Substance abuse	1.485
Learning disability	1.512
Traumatic brain injury	0.546
Other	1.787
Significance	0.840
SSI/SSDI	0.379
Self-esteem	1.593
Working at application	2.112
Number of dependents	1.087
Non-white	0.812

Table D-6. Odds Ratios Predicting *Competitive Employment* at Two-Year Follow-Up ($R^2 = .23$)

Variables	*Competitive employment* odds ratios
Case Management Services and Relationship	
Quality of the consumer/counselor relationship	1.294
IPE amendment	1.158
Education and Employment Development Services	
Job development	1.356
Job placement	1.668
On-the-job training	1.668
Mobility-Related and Other Support Services	
Independent living services	3.106
Tools/uniforms/equipment/stock	1.182
Covariates	
Vision	0.589
Hearing impairment	1.350
Nonorthopedic physical	0.784
Mental illness	0.919
Mental retardation	0.709
Substance abuse	1.520
Learning disability	1.903
Traumatic brain injury	0.816
Other	2.756
Significance	0.567
SSI/SSDI	0.415
Self-esteem	2.160
Working at application	2.076
Number of dependents	1.083
Non-white	0.705

Table D-7. Odds Ratios Predicting *Receipt of Health Benefits* at Closure ($R^2 = .19$)

Variables	*Receipt of health benefits* odds ratios
Education and Employment Development Services	
Business/vocational training	1.184
Four-year college/university	1.158
Medical and Psychosocial Services	
Medical services	0.919
Counseling	0.791
Mobility-Related and Other Support Services	
Interpreter services	0.294
Assistive technology devices	1.188
Maintenance payments	1.101
Covariates	
Vision	0.313
Hearing impairment	1.193
Nonorthopedic physical	0.655
Mental illness	0.694
Mental retardation	0.387
Substance abuse	1.105
Learning disability	0.982
Traumatic brain injury	0.561
Other	0.510
Significance	1.065
SSI/SSDI	0.557
Self-esteem	1.147
Working at application	1.433
Number of dependents	1.141
Non-white	0.654

Table D-8. Odds Ratios Predicting *Receipt of Health Benefits* at One-Year Follow-Up ($R^2 = .16$)

Variables	*Receipt of health benefits* odds ratios
Education and Employment Development Services	
Supported employment	0.710
Business/vocational training	1.115
Four-year college/university	1.211
Medical and Psychosocial Services	
Medical services	0.936
Mobility-Related and Other Support Services	
Interpreter services	0.306
Orientation/mobility	5.398
Transportation	1.075
Covariates	
Vision	0.558
Hearing impairment	1.557
Nonorthopedic physical	0.902
Mental illness	0.870
Mental retardation	0.765
Substance abuse	1.262
Learning disability	1.293
Traumatic brain injury	1.701
Other	0.677
Significance	0.868
SSI/SSDI	0.437
Self-esteem	1.031
Working at application	1.412
Number of dependents	1.056
Non-white	0.837

Table D-9. Odds Ratios Predicting *Receipt of Health Benefits* at Two-Year Follow-Up ($R^2 = .21$)

Variables	*Receipt of health benefits* odds ratios
Education and Employment Development Services	
Job placement	1.482
Business/vocational training	1.241
Medical and Psychosocial Services	0.941
Medical services	
Mobility-Related and Other Support Services	
Interpreter services	0.479
Assistive technology services	2.342
Covariates	
Vision	0.259
Hearing impairment	1.845
Nonorthopedic physical	0.743
Mental illness	0.870
Mental retardation	0.554
Substance abuse	0.924
Learning disability	1.492
Traumatic brain injury	0.991
Other	1.197
Significance	0.965
SSI/SSDI	4.490
Self-esteem	1.224
Working at application	1.429
Number of dependents	1.110
Non-white	0.642

[1]exhibit
[2]exhibit
[3]table 2-3
[4]exhibit
[5]exhibit
[6]exhibit
[7]exhibit
[8]exhibit
[9]exhibit
[10]exhibit
[11]exhibit
[12]exhibit
[13]exhibit
[14]exhibit
[15]exhibit
[16]exhibit
[17]exhibit
[18]exhibit
[19]exhibit
[20]exhibit
[21]exhibit
[22]exhibit
[23]exhibit
[24]exhibit
[25]exhibit
[26]exhibit
[27]exhibit
[28]exhibit
[29]exhibit
[30]exhibit
[31]exhibit
[32]exhibit
[33]exhibit
[34]exhibit
[35]exhibit
[36]exhibit
[37]exhibit
[38]exhibit
[39]exhibit
[40]exhibit
[41]table
[42]table
[43]table
[44]table
[45]table
[46]table
[47]table

[48]table
[49]table
[50]table
[51]table
[52]figure
[53]table
[54]table
[55]table
[56]table
[57]table
[58]table
[59]table
[60]table
[61]table
[62]table
[63]table
[64]table
[65]table
[66]table
[67]table
[68]table
[69]table
[70]exhibit
[71]table

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

ERIC
Educational Resources Information Center

NOTICE

Reproduction Basis

☐ This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☒ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").